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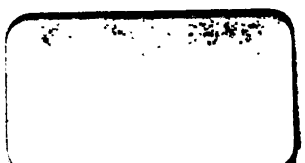

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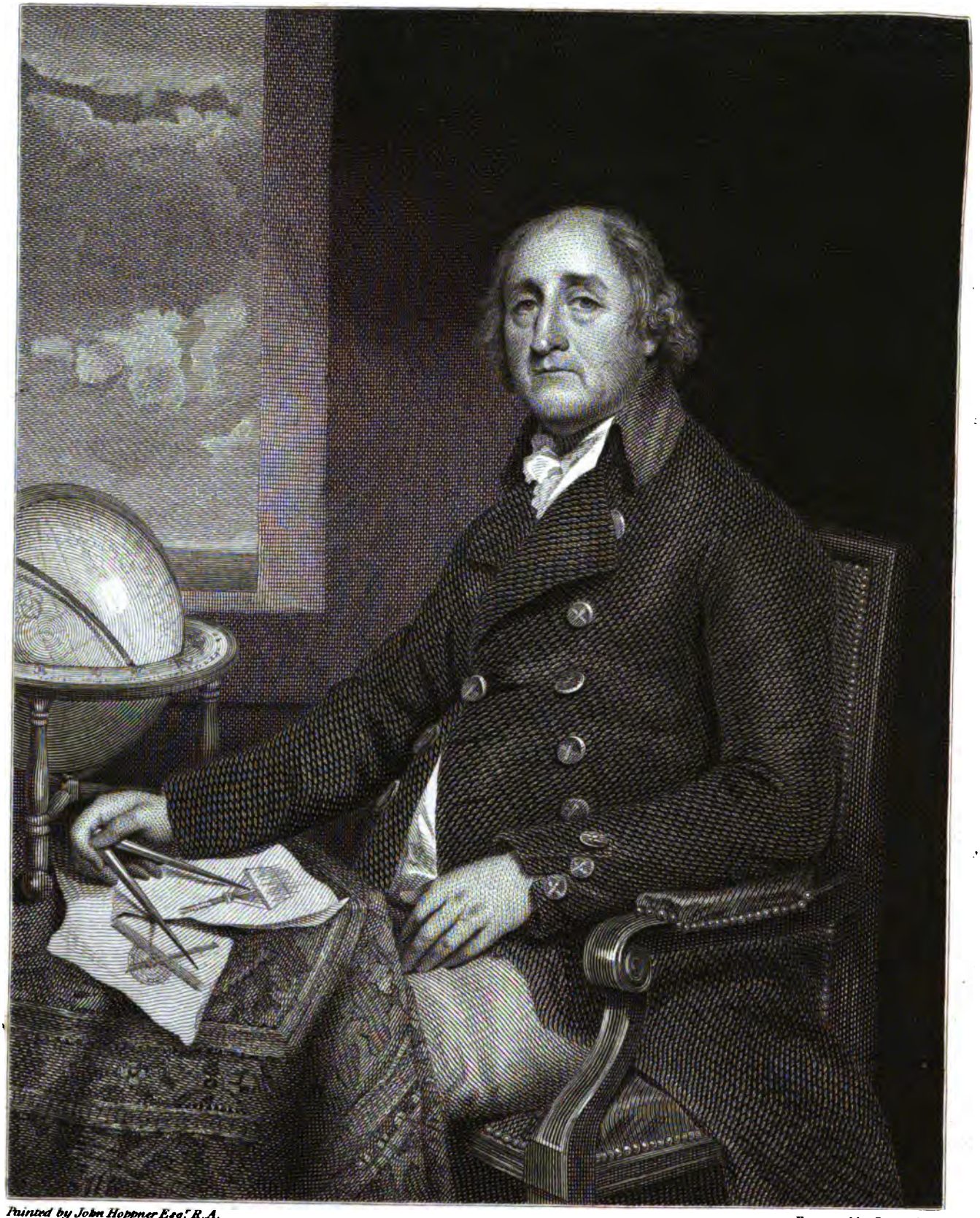

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Joseph Huddart

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# ERRATA.

Page 65, lines 23 and 24, instead of INTO MAURITIUS SHOAL, TO THE SOUTHWARD, read INTO MAURITIUS.—SHOAL TO THE SOUTHWARD.

Page 71, line 7, instead of *Doree House*, read *Dove House*.

Page 153, line 24, instead of DESCRPTION, read DESCRIPTION.

The two Pages which follow 397 are numbered 348 and 349. Read 398 and 399.

Page 547, line 15, instead of NORTWARD, read NORTHWARD.

Page 600, line 17, instead of *Ranier*, read *Rainier*.

Page 607, line 32, instead of VAN DIEMAN'S, read VAN DIEMEN'S,

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# GENERAL REMARKS

UPON

# PREVAILING WINDS AND WEATHER,

BY A LATE COMMANDER IN THE

SERVICE OF THE EAST INDIA COMPANY.

---

THE principal cauſe of winds is heat and cold; which expreſſions being relative, depend upon the compariſon: we ſay that matter is hot when it greatly exceeds the heat of other matter with which it is compared, and the latter we call cold, when compared with the former.

Therefore the ſun, which is the fountain of heat, affords cauſes for variety of winds, which are ſo uſeful to the navigator and ſo neceſſary for the preſervation of health.

It would be needleſs here to enter into philoſophical reaſoning upon the effects produced by the action of the ſun upon the air; let it ſuffice to ſay, that heat rarefies the atmoſphere, or common air, and renders it ſpecifically lighter, and that cold condenſes it. From common obſervations on the temperature of the air, which in high latitudes is ſo ſubject to continual changes, we muſt then expect to find great variety of winds and weather; and according to this difference of ſpecific gravity in the atmoſphere, is the ſtrength of wind, or motion of the heavier air, ruſhing towards the lighter to reſtore the equilibrium. Warmth alſo increaſes evaporation, and renders the atmoſphere capable of ſupporting a greater quantity of moiſture than it will do in a cooler ſtate; this is a powerful ingredient in the cauſes which produce the diverſity of winds and weather, eſpecially between the Tropics and ſixty degrees of latitude in both hemiſpheres: for by this addition of moiſture the air is alſo expanded, and becomes ſpecifically lighter than it would be in the ſame degree of heat in a drier ſtate.

## ON TRADE WINDS.

THIS being premiſed, I ſhall begin with the ſun's influence to rarefy the atmoſphere between the Tropics. By his apparent diurnal motion from eaſt to weſt continually rarefying the atmoſphere on the meridian with that luminous body, it occaſions the winds to blow from eaſt to weſt (the heavier atmoſphere following the lighter), and cauſes thoſe from the Tropic of Capricorn to the Equator to incline from the ſouthward, while the winds from the Equator to the Tropic of Cancer incline from the northward, in both hemiſpheres,



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proceeding towards the ſun; in the ſame manner the ſouth-eaſt trade winds (for thoſe conſtant winds are called *Trade-Winds*) prevail further to the northward when the ſun has a north declination, as from the month of June to the month of September. And, in the Atlantic Ocean, during thoſe months, there are often ſeveral degrees between the ſouth-eaſt and north-eaſt trade-winds, in which ſpace it frequently blows from the ſouth-weſt quarter; but this ſouth-weſt wind comes more properly under the denomination of a Monſoon, the cauſe of which is to be accounted for hereafter. From November to March the north-eaſt trade-wind prevails farther to the ſouthward, and ſometimes both winds almoſt meet each other, or leave little or no ſpace between them; but this depends upon particular cauſes: for between the ſouth-eaſt and north-eaſt trade-winds, the weather is often variable; *viz.* calms, ſqualls, with thunder, lightning, and rain, which ſometimes falls in very heavy ſhowers.

Was the atmoſphere of one continued warmth and motion uniform, we ſhould have no rain, for it would not take up any more moiſture in exhalation than it could ſupport; therefore in a ſteady Trade-wind, notwithſtanding the great evaporation, we ſeldom have any rain; but from accidental cauſes, the Trade-winds blowing ſtronger and weaker by turns, frequently cloudy, ſometimes ſlight ſhowers prevail.

What we are ſaying of Trade-winds, is ſuppoſed to happen at a conſiderable diſtance from the land, or from the limits of ſuch Trade-winds were other prevailing cauſes may take effect; for every where near the land, if the ſun has great influence, it occaſions land and ſea breezes near the ſhores, and from the particular ſituation of the coaſts, heavy guſts and gales of wind. The Trade-winds are more ſteady and uniform in the Pacific Ocean, from its greater extent, and alſo in the Ethiopic; then in the Atlantic Ocean, where Cape Verd in Africa extends ſo much to the weſtward, and Braſil in America to the eaſtward: near theſe latter coaſts we may with ſome degree of propriety call them Monſoons, as they prevail at the different ſeaſons of the year from different quarters.

The large continents have alſo more influence than ſmall iſlands, which, if they lie at a great diſtance from the main, operate very little upon the Trade-winds; if they are elevated they are ſubject to more rain than if they were low land; this is principally occaſioned by the aſcent given to the wind, or atmoſphere, in riſing over the tops of the hills, when being cooled it condenſes into ſmall drizzling rain, as I have obſerved at St. Helena and other iſlands; an effect peculiar alſo to all mountains, even in the middle of continents, when the atmoſphere is ſufficiently charged with moiſture. The ſun's rays heating the atmoſphere according to its denſity, it is therefore much warmer at the bottom than at the top of hills. I have obſerved upon a mountain, which was ſloping from the ſea towards the top, whoſe height was about 700 yards, a pleaſant breeze in ſhore, and fine clear weather; the air in aſcending (being condenſed by cold) about half way up had the appearance of fog, or thin light flying clouds, but at the top it was a miſling rain; this may frequently be ſeen in any mountainous country.



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## ON MONSOONS.

THERE is another kind of winds called *Monſoons*, on account of their being periodical, which blow one half of the year from one quarter, and the other half year from its oppoſite ſide. The cauſe of thoſe winds ariſes from the ſituation of the lands, and prevail no where ſo ſteady as in the Eaſt Indies, north of the Equator, from the coaſt of Africa to Acheen Head in the iſland of Sumatra; they are alſo prevailing through the China ſeas, but not with that conſtancy.

The general range of the coaſts of the continent, extending in an eaſt and weſt direction, from Africa to the eaſtern ſide of China, is the principal cauſe of thoſe winds; for the ſun in the months of April, May, June, July, and Auguſt, being vertical over that continent by its influence rarefies the atmoſphere to the northward; and hence the heavier air, on the ocean to the ſouthward of the land, proceeds to the northward to reſtore the equilibrium, which occaſions the ſouth-weſt winds in thoſe months. The ſouth part of Africa may be partly the cauſe of thoſe winds inclining to the weſtward, being cooler than the ocean atthis ſeaſon, for water is not ſo ſoon affected with heat or cold as the land, but keeps nearer a mean ſtate.

This atmoſphere proceeding from the neighbourhood of the Equator, and being highly charged with moiſture, ſoon begins to form into rain, though ſmall and ſlight, till near theland; but in the months of June, July, and Auguſt, it falls in great quantities on the Malabar Coaſt (which it firſt meets), and thoſe months are called there *the Rainy Seaſon*. Two gentlemen at Bombay had each of them a Pluviometer, or a machine for aſcertaining the quantity of rain which falls in a given time: one of them told me that in 22 hours there fell $7\frac{1}{4}$ inches of rain in the month of July 1782; and upon further inquiry I found by thoſe two machines, that the quantity of rain falling at Bombay in the ſouth-weſt Monſoon, is more than double the quantity which falls in England during the whole year; though ſometimes in this Monſoon it may be fair weather for ſeveral days together: the quantity of rain decreaſes in paſſing inland, and towards the Coromandel coaſt, and though at Madras there may be frequent ſhowery weather, yet this Monſoon is the beſt ſeaſon for ſhipping to lay on the above coaſt: the ſouth-weſt Monſoon prevailing over the Bay of Bengal, it is difficult for a ſhip to make her paſſage from thence to Madras, till the month of September.

In the months of November, December, January, February, and March, the north-eaſt, or oppoſite Monſoon, prevails in thoſe ſeas; for the ſun having got to the ſouthward, and rarefied that atmoſphere, which in the other Monſoon was the more condenſed, and the land to the northward being much cooler, and very cold on the Continent north of the Tropic of Cancer, it conſequently condenſes the air, and the winds are blowing from the north-eaſt, or in an oppoſite direction to the other Monſoon.

This is the *Fair Weather Monſoon* on the Malabar Coaſt, and on all other coaſts in India, where it does not blow inſhore, or ſome other cauſes interfere; for where there are prevailing winds from the ſea, the atmoſphere, in meeting the coaſt, will be ſubject to form into rain as was ſaid before. Hence this is the worſt ſeaſon to lay on the Coromandel



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Coaſt, but though ſqually, there is not the quantity of rain falling that might be expected, and for two reaſons: firſt, The wind from the Continent where it is cold, probably froſt, muſt be in a dry ſtate, and the ſhort paſſage down the Bay of Bengal, ſcarcely affords time to evaporate a ſufficient quantity to load the atmoſphere to a great height with moiſture; ſecondly, The atmoſphere in proceeding to the ſouthward is continually increaſing in warmth, and therefore more capable of ſupporting its moiſture, therefore it appears conſiſtent with theory, that fair weather ſhould prevail in this Monſoon.

On the Malabar Coaſt thoſe months have a perpetual ſerene clear ſky; at Bombay it would be remarkable to ſee it cloudy, or to have rain in January, February, and March; and though we had ſome rain one night in January 1782, the inhabitants remarked that ſeveral years had elapſed ſince they had ſeen rain at this ſeaſon. For, as was ſaid before, the north-eaſt wind, which proceeds from cold, and over a large tract of continent, paſſes here ſo dry, and void of moiſture, as to attract it in a ſurpriſing degree from all ſubſtances it meets with, and makes the beſt ſeaſoned furniture to fly: this is not peculiar to Bombay, but happens every where on the continent of Aſia, about the parallel of the Tropic of Cancer, from Africa to the eaſtern coaſt of China.

The navigation up and down the Malabar coaſt in the north-eaſt Monſoon is the moſt pleaſant that I ever experienced, having a ſerene weather, and in general pleaſant land and ſea breezes, which change regularly near the coaſt, without much interval of calm between them. But in the ſouth-weſt Monſoon it is dangerous to come near this coaſt, except to fall in with a harbour, as the winds blow right in for the land (eſpecially from Mount Dilly to the northward as far as Surat), ſeldom veering above a point or two; hence ſhips ſailing from Bombay work out with the ebb (which ſets ſtronger out of the harbour in this Monſoon, by reaſon of the heavy rains), and anchor in the flood, if they cannot hold or gain ground by working until they get a good offing, on the favour of a point or two in the wind; ſo as to enable them to gather an offing in ſtretching down the coaſt.

The Monſoons are not confined to India only, but the winds are thus influenced in many other parts of the world, eſpecially where there are large continents, and the coaſts are extending in an eaſterly and weſterly direction in low latitudes; as near the coaſts of Guinea and Brazil, where, though the winds are not ſo fixed, the different ſeaſons have great influence upon them.

There is alſo a north-weſt Monſoon, which prevails in the Indian ocean during the months of November, December, January, February, and March, and may be ſaid to extend from the Coaſt of Africa to New Guinea, its breadth being in many parts between the 3d and 8th degrees of ſouth latitude, and from 2° to 4° of north latitude; but this is a very unſettled Monſoon, with variety of weather and frequent calms, though it often blows ſtrong, with heavy ſqualls, on the north-weſt coaſt of Sumatra.

It is by keeping in the tract of this Monſoon that ſhips ſail to the eaſtward amongſt the iſlands, and make what is called *the Eaſtern paſſage to China*, when the north-eaſt Monſoon prevails in the China ſeas; and ſometimes the French, bound from the iſland of Mauritius to India, make their eaſting in this Monſoon.

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In the ſouthern part of the tract of this north-weſt Monſoon, a ſouth-eaſt Monſoon, or oppoſite wind prevails at the contrary ſeaſon of the year; *viz.* from the month of May to that of September: but this is ſeldom called a Monſoon, as it joins with the ſouth-eaſt trade-wind, and becomes a continuation thereof, extending in thoſe months from 4° to 2° of ſouth latitude, or even ſometimes north of the Equator; from which limits the ſouth-weſt Monſoon already mentioned begins and continues to the coaſts of India.

Thoſe Monſoons in the Indian ſeas confine the ſouth-eaſt trade wind, which extends between the coaſts of Madagaſcar and new Holland, to much narrower limits than the ſouth-eaſt trade-winds in either the Ethiopic or Pacific oceans; for during the months of November, December, January, February, and March, when the north-eaſt and north-weſt Monſoons prevail as before mentioned, this ſouth-eaſt trade-wind does not extend farther northward than the 12° or 10° of ſouth latitude; it is alſo ſubject to heavy gales of wind, eſpecially in the neighbourhood of the iſland of Mauritius, and from thence to the coaſt of new Holland, in the aforeſaid months.

The Monſoons do not change from one to the other at the ſame time, throughout their whole extent, nor do they ſet in at the ſame ſeaſons, preciſely at any particular place in different years; though in the latter caſe they are generally much nearer than the former; in both caſes various cauſes may have effect: the principal in the firſt is, the ſituation of the coaſts, and in the latter, the prevailing weather: but there is generally a month or two of unſettled weather about the change of the Monſoon, (near land, eſpecially) ſubject to heavy gales of wind, which, though of ſhort duration and often of ſmall extent, are dangerous to ſhipping from the ſudden ſhifts to ſome other quarter, that makes the ſea run croſs, and wreck the veſſels. The loſs of maſts is often the firſt conſequence of theſe gales, and hence from lowering the centre of gravity the hull becomes ſo labourſome as to ſtrain, and open her in ſuch a degree that it is not in the power of the mariner to keep her free, or prevent her from foundering.

Thoſe gales generally give warning ſome time before they happen, and are much the ſame in effect as the *Tiffoons* in the China ſeas, and Hurricanes in the Weſt Indies; the appearances preceding them being pretty near the ſame: a heavy greaſy appearance in the atmoſphere, the ſun wading deep, or not to be ſeen, ſometimes a croſs ſea, and frequently the wind from an unuſual quarter, or unſettled. It ſometimes happens that thoſe gales in India fall out a month ſooner than they are generally expected: if ſo it is probable there may be another before the ſetting in of the Monſoon, and therefore the navigator ſhould be upon his guard when the appearances are threatening: but there ſeldom happens more than one heavy gale about the time of change, and ſometimes ſeveral years elapſe without a ſevere gale.

In the change between the ſouth-weſt and north-eaſt Monſoons thoſe gales generally happen between the middle of October and the latter end of November; on both the Malabar and Coromandel coaſts; and thoſe between the north-eaſt and ſouth-weſt Monſoons in the month of April on the Coromandel coaſt, called the *Petty Monſoon*, as the gales have ſeldom been ſo violent: on the Malabar coaſt in the month of May they are immediately followed

by

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by the ſouth-weſt Monſoon. On this (the Malabar coaſt) in the month of April the wind prevails much from the northward, which, with the current to the ſouthward, renders it tedious for ſhips to work up the coaſt; in general about the middle, or latter end of this month, the clouds begin to make their appearance upon the land in the evening, and probably you have ſome lightning, thunder, and rain; but in May this is more conſtantly the caſe, and often the ſqualls gather heavy upon the land, and come off with hard guſts of a ſhort duration, and a heavy rain; but in general it is over by midnight; then you have light airs and calms moſt part of the day with clear weather. At other times north-weſt winds prevail with cloudy weather for ſeveral days together; but if it puts on the appearances preceding a gale already mentioned, the mariner may prepare for heavy weather, and though he may eſcape a gale, as it is often confined to a ſmall extent, he will in general experience bad weather.

I ſhall give an account of the weather on the Malabar coaſt, from the 16th of April to the ſetting in of the ſouth-weſt Monſoon, in the year 1782, which was very different from the general weather at the ſeaſon above deſcribed, and therefore more fatal in its conſequences. Previous to the 16 of April the wind had prevailed full as much as uſual from the northward, with fine weather as before deſcribed, but from the 16th it gradually loſt its pleaſant appearance. At Bombay the *Revenge* and *Royal Admiral* were under orders to proceed down the coaſt. On the 19th the *Revenge*, Captain *Hardy* (an able ſeaman, and his ſhip the firſt in the marine of Bombay) ſailed for Anjengo; the *Royal Admiral*, on the 20th A. M. for Tellicherry, the weather looking bad, the wind ſoutherly and increaſing with a heavy ſky. After working the ebb, the *Royal Admiral* anchored at low water, between Kenery and Old Woman's Iſland: at 4 P. M. the wind increaſing with a heavy ſea, the *Revenge* ſtretched in to the northward of Kenery, was ſeen from the Royal Admiral, cloſe reefed her topſail, wore ſhip and ſtood out to ſea; at 7 P. M. the Royal Admiral drove, but at 9 anchored in the Outer Road of Bombay harbour, and rode out the gale. On the 21ſt April at 9 A. M. the wind at S. E. blowing a tremendous gale which continued till about 4 P. M. with rain, from thence decreaſing till 8 P. M. altering its direction gradually to about S. S. W. when we had a fine night and clear ſky.

The *Cuddalore* ſloop of war ſailed from Bombay to join the ſquadron at Madras, with two north-country built brigs, tranſports loaded with grain, about the 16th.—The commander of the *Nancy*, one of the tranſports, told me, that having been working till the 20th off the Iſland of Kenery, againſt ſoutherly winds, without gaining ground, he reſolved with *Fletcher*, the commander of the other tranſport, to ſpeak the commodore, and adviſe him to bear up for Bombay; but before this could be done it was too late to gain the harbour before night, therefore it was put off. He ſays that on the 21ſt about 10 A. M. the gale was very heavy from the ſouth-eaſt quarter, with a croſs ſea. *Fletcher* was not in ſight, but he ſaw the *Cuddalore* to leeward apparently in diſtreſs; his maſts were ſtanding, but ſome of his ſails were looſe and flying in ribbands; he then bore down to him; but could not come near enough to ſpeak him; the gentlemen (for the *Cuddalore* had ſeveral officers on board paſſengers for Madras) waving their hats, and the ſea making a free paſſage over her: he brought too to leeward

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leeward of the *Cuddalare*, but ſoon after he loſt two of his men, who were waſhed from the pumps; this accident drawing his whole attention to his own ſhip, prevented him from looking for the *Cuddalore* for a ſhort time, and when he did, he ſaw nothing of her.. The *Cuddalore* being deep waiſted was probably near foundering when the *Nancy* paſſed her; the *Nancy* loſt her maſts, had her gunwales tore up, which they covered with canvas, and by great exertion at the pumps preſerved the ſhip and the remainder of their lives; ſhe was the only one of the four mentioned near the iſland of Kenery which did not founder. A part of the mainmaſt of the *Revenge*, which had been carried away a little above the deck, was found and brought to Bombay, and by ſome particular mark known by the builder. The *Eſſex*, company's ſhip, Captain *Strover*, was alſo on this part of the coaſt, but further out to ſea; ſhe loſt all her maſts, and though a new ſhip had worked much; nor did I hear of one veſſel at ſea between Choul and St. John's Point, which was not either diſmaſted or foundered.

At Tellicherry the wind was alſo from the ſouthward, but the ſtrongeſt of the gale was felt two days ſooner than at Bombay, and not near ſo heavy; the ſhips rode it out: the *Neptune*, with a ſtream which ſhe happened to be moored with, and the ſouthern anchor.

At Surat the gale was heavy, but twelve hours later than at Bombay; ſtrongeſt from the north-eaſt quarter, and ſhifted to the north-weſt; a great havock amongſt the ſhipping was the conſequence. This gale ranging up the coaſt from the ſouthward, occaſioned the ſea to overflow the low lands about Surat, and in the Gulph of Cambay, which drowned great numbers of the inhabitants, cattle, &c.

A ſhip under Portugueſe colours arrived at Bombay the evening of the 20th, the day before the gale, and had only been five days from Anjengo—a paſſage ſo quick had never been performed at this ſeaſon of the year, which further proves that the gale had commenced to the ſouthward; and we may alſo infer that it did not prevail far from the coaſt, for the *Eſſex* had been working ſeveral weeks from Tellicherry, and muſt have arrived at leaſt as ſoon as the Portugueſe ſhip at Bombay, had ſhe found thoſe winds; but being at ſome diſtance from the coaſt (probably not more than 20 leagues,) ſhe was left ſhort and ſuffered in the gale.

On the 22d, the day after the gale, the ſea was fallen at Bombay, and the weather was as fine as if no gale had happened, which continued with a remarkable ſmooth ſea on the Malabar coaſt till the 15th of May. I landed in my boat at Calicut in the beginning of May, and had no more ſurf than in the river Thames, and not the leaſt ſwell for many days, to prevent the jolly boat from landing, which is a circumſtance I never ſaw on this coaſt before.

During the ſiege of Tellicherry, in Hyder Ally's war, the Bombay cruizers were ſometimes kept there till about the middle of May; in ſuch caſe it had been cuſtomary to run down the coaſt, and proceed to the ſouthward of the Equator into the limits of the ſouth-eaſt Monſoon, and in it take their weſting, and proceed to Bombay with the ſouth-weſt Monſoon, but in the ſeaſons of 1780 and 1781 they had made their paſſage up the coaſt in the month of May, by perſeverance in carrying ſail through the land ſqualls, (which, as before mentioned, generally come off at night,) and had accompliſhed it much ſooner. But in this ſeaſon (1782) we had not any of thoſe ſqualls from the land, or ſouth-eaſtward, to

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give us the leaſt aſſiſtance up the coaſt; it therefore appears that the former gale from the ſouthward had ſo changed the atmoſphere as not to produce the uſual effect. On the 16th of May the weather began to put on its threatening appearance, with ſqually weather from the northward; the *Neptune* and *Royal Admiral* off Mangalore, bound to Bombay, could gain no ground: the weather growing every day worſe, thoſe ſhips were ſeparated in the night, between the 18th and 19th, in heavy ſqualls from the north-weſtward. On the 20th of May, A. M. thick weather, the Monſoon ſet in with a heavy gale from S. W. by W. to W. N. W. the ſhips had about 20 leagues offing, the *Neptune* cut away her top-maſts, and let go her bowers in deep water, which ſhe ſoon parted; however, having a good drift, and the gale abating about 9 A. M. on the 21ſt of May the *Neptune* fell in with Pigeon Iſland, and anchored to leeward of it; the *Royal Admiral* anchored near Mangalore about the ſame time.

This gale was furious at its onſet, and continued with great violence, at firſt with a croſs ſea from the northward, but the high ſea occaſioned by the gale from ſouth-weſt by weſt, which was ſteady to that point, ſoon made the former diſappear, and though it was mountains high, according to the ſeaman's expreſſion, by running fair it did not injure the ſhips ſo much as a croſs ſea. This ſea ran ſo hollow that the *Royal Admiral*, though only drawing about 17 feet water, dipped the cap of her bowſprit, after anchoring off Mangalore.

On the 23d of May the Monſoon drew round to ſouth-weſt by ſouth, which enabled the ſhips to get off the coaſt and arrive at Bombay the 28th. In this gale all the ſhips on that part of the coaſt about Mount Dilly, and forty leagues north and ſouth of it, except thoſe two, were loſt. The ſeaſon being late, I believe there were few; I only recollect hearing of the loſs of the Ordinance ſhips at Calicut, and of a Portugueſe ſhip about Mount Dilly.

Two tranſports left Calicut at the ſame time with the *Neptune* and *Royal Admiral*, but finding they could not gain ground, they ſtretched off the coaſt with the north-weſt winds till they were in about 8° north latitude, and conſiderably to the weſtward of the meridian of Bombay; they took the advantage of the wind as it drew round to the weſtward and ſouthward, and eſcaping this gale, arrived at Bombay on the 26th, two days before the *Neptune* and *Royal Admiral*, though the latter ſhips ſailed much faſter.

I would therefore, in the month of May, prefer ſtretching off from the coaſt, to the northward or ſouthward of the Lakedivas, in making a paſſage up to Bombay, to either of the other paſſages, *viz.* Running to the ſouthward and croſſing the Line; or working cloſe in ſhore, and taking the advantage of thoſe ſqualls in which you are ſo liable to ſplit your ſails, and receive great injury by wear and tear.

Between the gale of the 21ſt of April and the the middle of May, as well as in the ſqually weather from the middle of May to the 20th of the ſame month (or the ſetting in of the ſouth-weſt Monſoon), we found none of thoſe cuſtomary ſqualls from the land in this ſeaſon: I ſhould think it was owing to the gale of the 21ſt April, which had lightened the atmoſphere about the ſouthern part of the peninſula. This gale, as was ſaid before, commencing to the ſouthward, and extending to St. John's, without much deviation in its direction: in the Gulf of Cambay the gale veered, from which I muſt conclude that the moſt

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light and rarefied atmoſphere was not much to the northward of that Gulf, being probably to the ſouthward at the commencement, and proceeding to the northward during the gale, which lengthened its duration; for at this ſeaſon the ſun is vertical at Tellicherry. This ſhift of the atmoſphere from the ſouthward, had ſo reſtored the balance on the coaſt, that there were no more ſouth-eaſt winds in the interval of time to the ſouth-weſt Monſoon.

I ſhall only give the hiſtory of another remarkable gale on the coaſt of Coromandel, in what is called the *Petty Monſoon*, which generally happens in the month of April, though it was not the caſe in the year 1787.

On the 12th of May, 1787, I made the iſland of Ceylon, bound to Madras; had pleaſant weather, with light variable breezes till the 16th, on which day it became rather ſqually. On the 17th and 18th the weather put on a heavy appearance, with variable winds and ſlight ſqualls. On the 18th P. M. a freſh breeze at north-north-eaſt, and the ſea began to riſe from the eaſt-north-eaſtward. Stretched to the north-weſtward, and ſaw Pondicherry at ſunſet. From this till midnight heavy ſqualls, variable all round; ſplit one of our topſails in clewing down; but now the wind fixing to the weſtward, we took this opportunity to get off the coaſt, and determined not to proceed for Madras Roads till the weather appeared more ſettled. On the 19th May, at noon, having got about 20 leagues from the coaſt, ſecured the ſhip for a gale, and brought to under a balanced mizen: the ſea now running very high from eaſt-north-eaſt, and ſtriking the ſhip with great violence, wind from the weſtward. At 6 P. M. a violent guſt from the north-north-eaſtward; I cannot call it a gale, for it was ſoon over; I did not note the time, but think it was not an hour that it continued ſo heavy, afterwards dying away, and a heavy rain, till 9 P. M. when it ſprang up at ſouth-weſt, and increaſed to a heavy gale. About midnight the ſea began to riſe high and run quick from ſouth-ſouth-eaſt, the ſhip ſtill continuing to lay to under a balanced mizen, head north-weſtward, lay pretty eaſy, except the ſea ſtriking her hard againſt the counter. On the 20th May, about noon, it cleared a little, the heavy atmoſphere moving over us from weſt-north-weſt, though the wind was ſtill at ſouth-weſt, decreaſing a little; at 1 P. M. ſet our courſes, and at 4 P. M. the topſails; at 8 P. M. ſeaſonable, though a croſs ſea from ſouth-ſouth-eaſt, and the wind at weſt-north-weſt. Stretched to the ſouthward till 6 A. M. on the 21ſt May, when I ſtood in ſhore and made Pullicat, having had a ſtrong current to the northward during the ſouth weſt gale. On the 22d anchored in Madras Roads; found ſeveral veſſels had been drove on ſhore in the gale, and the *Walpole* laying by her laſt anchor: a very confuſed ſea tumbling into the Roads.

Some days after this letters were received at Madras giving an account of heavy gales, and of an inundation at Coringa, which had deſtroyed many of the inhabitants, &c.

On reading ſome of thoſe letters, I requeſted copies of two of them, in which the circumſtances were minutely deſcribed; and I hope the gentlemen who communicated them to me, will excuſe the liberty I have taken of inſerting them here at full length.



DEAR SIR,

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'DEAR SIR, INGERAM, *24th May*, 1787.

'BEFORE my leaving Ellore (about a month ago) I wrote to you 'reſpecting a removal to Ganjam, which letter I hope you received. I write to you now 'to let you know the particulars of a very heavy gale and inundation of the ſea, which have 'done great miſchief in this neighbourhood.

'A north-eaſt wind began to blow here on the evening of the 17th, and increaſed very 'much on the 18th and 19th. On the 20th at 7 A. M. it became ſo violent as to blow 'down trees and unroof the houſes, at the ſame time raining very hard. At ten the 'ſea came up from Coringa ſo very rapidly, that in leſs than five minutes it was impoſſible 'to go from one houſe to another; the wind blew very hard from the north-eaſt, till be-'tween one and two o'clock, when it became due eaſt, without abating in the ſmalleſt degree; 'it continued in this quarter for an hour and a half, bringing the ſea upon us in very large 'waves; at nearly 3 P. M. it leſſened for about ten minutes, and in a moment blew as hard 'from the ſouth as it had done from the north-eaſt and eaſt, which ſaved the lives of the few 'who are ſpared; one hour more from the eaſt would have ſwept every thing away.

'Jaggernaickporam is deſtroyed, but fortunately only one or two lives loſt. Doctor 'Roxburgh and his family eſcaped to Samulcottah during or immediately after the gale. 'Coringa is totally ruined; out of four thouſand inhabitants, about one hundred only are 'alive; Mrs. Corſar, Mrs. Dawſon, and Lieutenant Green, are of that number; they have 'not ſaved a ſingle article of their property.

'The villages about this place have ſuffered greatly, and a very ſmall proportion of the 'inhabitants are in life.

'Dutchwarrum and Bandermalanky are conſiderably injured; the former is ſeven miles 'to the ſouthward of this, and the latter fourteen.

'It is computed there that ten thouſand inhabitants have loſt their lives. The houſes at 'Samulcottah, Rajamundrum, and Madepollum are unroofed. No Europeans have been 'loſt here. I was very near drowned in attempting to get to the factory houſe, which was 'only one hundred yards from the one I was in; all my efforts were in vain: after being 'very much exhauſted by ſtruggling with the waves and wind, I was obliged to be content 'with the ſhelter of an houſe ſmaller than the one I had left, and not ten yards from the 'one I aimed at reaching; ſhort as the diſtance is, I found it impracticable. Mr. Firth 'landed at Coringa on the ſtorm beginning, and was waſhed away with the houſe he had 'taken ſhelter under.

'I remain, Dear Sir,

'Yours ſincerely,

'HEN. BUCHAN.'

INGERAM, *7th June*, 1787.

'MY DEAR FRIEND,

'You wiſh to have a juſt and circumſtantial account of the 'late calamity we have ſuſtained; it is no wonder the accounts you have ſeen ſhould be in-'coherent and imperfect, for while the misfortune was ſo recent, our minds were diſtracted

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' with a thouſand fears and apprehenſions for the conſequences; indeed people leſs alarmed ' and leſs gloomy than ourſelves, might have admitted the apprehenſion of peſtilence and ' famine; the former from the air being tainted with ſome thouſands of putrid carcaſes, ' both of men and cattle, and the latter from the country around us being deſtroyed, as well ' as our ſtock of proviſions and the fruits of the earth.

' From the 17th May it blew hard from the north-eaſt; but, as bad weather is unuſual at ' ſuch a ſeaſon, we did not apprehend that it would become more ſerious; however, on the 19th ' at night it increaſed to a hard gale, and on the 20th in the morning it blew a perfect hurri- ' cane, inſomuch that our houſes were preſently untiled, our doors and windows beat in, ' and the railing and part of the wall of our incloſures blown down. A little before 11 A. ' M. it came with violence from the ſea, and I preſently perceived a multitude of the inhabi- ' tants crowding towards my houſe, crying out that the ſea was coming in upon us. I ' caſt my eyes in that direction, and ſaw it approaching with great rapidity, bearing much ' the ſame appearance as the *Bore* in Bengal river. As my houſe was ſituated very low, I did ' not heſitate to abandon it, directing my ſteps towards the Old Factory, in order to avail myſelf ' of the Terrace; for in that dreadful moment, I could not ſo far reflect upon cauſes or effects ' as to account for the phenomenon, or to ſet bounds to its increaſe. I had indeed heard of ' a tradition among the natives, that about a century ago the ſea ran as high as the talleſt ' Palmira trees, which I have ever diſregarded as fabulous, till the preſent unuſual appear- ' ance called it more forcibly to my mind. In my way to the Old Factory, I ſtopped at the ' door of Mrs. Boure's houſe, to appriſe the reſt of the gentlemen of their danger, and the ' meaſures I had concerted for my ſafety; they accordingly joined me, but before we at- ' tained the place of our deſtination we were nearly intercepted by the torrent of water. As ' the houſe is built on a high ſpot, and pretty well elevated from the ground, the water ne- ' ver ran above a foot on the firſt floor, ſo we had no occaſion to have recourſe to the Terrace. ' Between one and two o'clock the water began to ſubſide a little, and continued gradually ' decreaſing till the body of it had retired, leaving all the low places, tanks, and wells, full of ' ſalt water. I think the ſea muſt have riſen fifteen feet above its natural level; about the ' time of the water ſubſiding, the wind favoured it by coming round to the ſouthward, ' from which point it blew the hardeſt. As the Factory Houſe was in a very ruinous ſtate, ' and ſhook exceedingly at every guſt, we were very anxious to get back to Mrs. Boure's ' houſe. I attempted it twice, but found I had neither power nor ſtrength to combat the ' force of the wind, getting back with the greateſt difficulty to my former ſtation. About ' 5 P. M. during a ſhort lull we happily effected our remove. It blew very hard the great- ' eſt part of the night; at midnight it veered to the weſtward, and was ſo cold that I ' thought we ſhould have periſhed as we reclined in our chairs. The gale broke up to- ' wards the morning. I ſhall not attempt to deſcribe to you the ſcene that preſented itſelf ' to our view when daylight appeared; it was dreary and horrid beyond deſcription: the ' trees were all blighted by the ſalt water, the face of the country covered with ſalt, and ' yet it had more the appearance of having ſuffered by a blaſt of hot wind, or by the ' eruptions of a volcano, than by an inundation of water, ſuch an effect had it in deſtroying



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' the herbage and foliage of every deſcription. Our houſes were found full of the inhabi-
' tants who had taken refuge therein, ſtripped of doors and windows, and quite open to
' the weather at top; the Godowns moſtly carried away, and ſeveral ſubſtantial tiled houſes
' ſo completely levelled, as ſcarcely to afford a mark of their having exiſted; but our ſuf-
' ferings were light when compared with thoſe of Coringa, and the reſt of the villages near
' the ſea. At Coringa, out of four thouſand inhabitants, it is ſaid not more than twenty
' were ſaved, and thoſe moſtly on Mrs. Corſar's terrace, and on the beams of Captain
' Webſter's houſe.

' Mr. Gideon Firth, Mr. George Day, and the Portugueſe Padre were, I believe, the
' only Europeans that were drowned. At firſt the ſea roſe gradually, and as it came in
' with the tide the people were not much alarmed; but when they found it ſtill increaſe ſo
' as to render their ſituation dangerous, they mounted on the top of their cagon-houſes,
' till the ſea, impelled by a ſtrong eaſterly wind, ruſhed in upon them moſt furiouſly,
' when all the houſes at the ſame awful moment gave way, and nearly four thouſand ſouls
' were launched into eternity. This tremendous ſcene was viſible from Mrs. Corſar's
' terrace, over which the ſea ſometimes broke; and they were frequently in great danger
' from the drifting of veſſels and other heavy bodies, which muſt inevitably have brought
' down the houſe had they come in contact. At the Dutch village of Jaggernaikporam, I
' hear the diſtreſs was very great, and that about a thouſand lives were loſt; many of the
' villages in the low country, between Coringa and Jaggernaikporam, were totally de-
' ſtroyed, and the inundation carried its dreadful effects as far to the northward as Ap-
' parah; but I do not hear that many lives were loſt at that place.—The inundation pene-
' trated inland about ten coſſes from the ſea in a direct line, but did little more damage to
' the weſtward of us than deſtroying the vegetation. It would be very difficult to aſcer-
' tain with any preciſion the number of lives loſt in this dreadful viſitation; the moſt intel-
' ligent people I have conferred with on the ſubject, ſtate the loſs at from ten to twenty
' thouſand ſouls: this is rather an indefinite computation; but I think, if the medium be
' taken, it will then rather exceed than fall ſhort of the real loſs; they compute that a lack
' of cattle were drowned, and from the vaſt numbers I ſaw dead at Nellapella, I can eaſily
' credit their aſſertion. For two or three days after the calamity, ſuch was the langour of
' the inhabitants, that not a cooley or a workman was to be procured at any price; it re-
' quired our utmoſt exertion to get the dead bodies and the dead cattle buried with all
' poſſible ſpeed, to prevent the air being impregnated with putrid effluvia. This, to be
' ſure, was a taſk we could not fully execute, except juſt within the villages. However, no
' bad effects have enſued, which I impute to the continual land winds that have blown
' ſtrongly for ſome time paſt; theſe have the property of drying up the juices of the ſaid
' bodies, and preventing putrefaction, which muſt neceſſarily have been the conſequence
' in a damp air. It is extraordinary that the vaſt tract of low ground on the ſouth ſide of
' Guadavery, from Gotendy to Bundarmalanka, ſuffered very little from the inundation;
' and ſcarcely a perſon periſhed. This country lies ſo exceeding low as to be flooded in
' many places by the common ſpring tides, and a great deal of it is in conſequence covered

' with

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'with a ſalt jungle. It is probable they owe their ſafety to thoſe ſmall iſlands at the mouth 'of the Guadavery, as well as Point Guardawar itſelf, which muſt have both contributed 'to break the force of the ſea.

'When we had recovered from our conſternation on the 21ſt, we began to conſider how 'we ſhould be able to exiſt in ſuch a field of deſolation; as our wells were filled with ſalt 'water, our proviſions deſtroyed, and we found, by digging in different places, no ſweet 'water was to be procured; when it was diſcovered that Providence had ſo far interfered 'in our favour as to bring down the freſhes at a very early and unuſual ſeaſon. From what 'accounts we could haſtily gather, we were apprehenſive that the ſtores of rice were either 'much damaged, or totally deſtroyed, as the rice Godowns and Gomahs are generaly ill-'ſecured againſt an accident leſs formidable than this. However the event has happily 'falſified our ſurmiſes, and rendered our information fallacious; for rice has hitherto been 'plenty, and not dear. The generous ſupplies that have been ſent us from the Preſidency, 'will, I truſt, ſecure us from ſerious want. Our markets have not yet been attended by a 'ſingle perſon with an article for ſale, but this is not much to be wondered at, as our ſup-'plies were generally furniſhed by the villages at no great diſtance in land, and thoſe coun-'tries have been drenched ſufficiently in ſalt water to deſtroy their produce. The fiſher-'men, a moſt uſeful body of people, inhabiting chiefly by the ſea ſide, have been almoſt 'totally extirpated, and we are thereby deprived of a very material part of our ſubſiſtence; 'time alone can reſtore us to the comforts we have loſt, and we have reaſon to be thankful 'that things have not turned out ſo bad as we apprehended. I have tired myſelf 'in attempting this narration, and I fear I have almoſt tired you in the peruſal of it. A 'great deal more might be ſaid upon the ſubject, and much more expreſſed in fewer words; 'but I have not the talent of writing conciſely, nor of dreſſing a dull ſubject in a flowery 'garb. If it is well received by my friend, my end is fully anſwered. The greateſt part 'of this intelligence you have already had in detail, but it is your deſire I ſhould bring it 'to one point of view. It is haſtily written, and very inaccurate, but you will remember 'I was in a good deal of pain at the time of writing it, from an inflammation in my leg, ſo 'had not ſufficient eaſe or leiſure to correct or tranſcribe it.

'Yours affectionately,

'WILLIAM PARSON.'

In comparing the above accounts with what I experienced off Pondicherry, about 80 Leagues to the ſouth-weſtward from Coringa, I am inclined to conjecture that I happened to be near the ſituation of the lighteſt atmoſphere from the 17th to the 19th of May, as I had the winds variable till the ſetting in of the ſouth-weſt gale: I think alſo that there might be two cauſes, or heavier parts of the atmoſphere, as the principal foundation, one about Arracan, and the other between Sumatra and Ceylon, with a light armoſphere between; that during the north-eaſt gale in the bay, or from the coaſt of Arracan, it was continually condenſing the atmoſphere about Pondicherry, which was the limits of that gale; and this lighteſt atmoſphere, being alſo backed by a denſer to the ſouthward, would change

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change its ſituation (as it became charged in that part) to the northward and to the eaſtward of my ſituation, or towards the middle of the bay, when at 9 P. M. on the 19th, the ſouth-weſt gale began with me. At midnight I found a heavy croſs ſea from the ſouth-eaſt quarter, which leaves not a doubt with me of a ſtrong gale from that quarter, and at no great diſtance, as this ſea far exceeded any ſea from the direction I had the wind, which only tended to croſs the other. The ſouth-eaſt gale then proceeding north-weſtward, towards the lighteſt atmoſphere, to reſtore the equilibrium; about 9 or 10 A. M. on the 20th, I met the north-eaſt gale (which had been blowing ſome days for the ſame purpoſe) about the parallel of Coringa, when both joining in their effect, they took a direction between the two, *viz.* to the weſtward; from which the united currents and accumulated waters were forced particularly upon that part of the coaſt, and produced this almoſt incredible riſe of the ſea. It is alſo reaſonable to conclude that the ſoutherly wind would prevail, as the north-eaſt wind, from its ſtrength and duration, muſt have been exhauſted, or have rarified the air in that quarter from whence it proceeded; that it was alſo at a ſeaſon when the ſouth-weſt Monſoon prevails, the ſun being vertical conſiderably to the northward of Coringa.

The ſtrongeſt gale I have known in a ſteady direction upon a coaſt, does not raiſe the ſea above three feet. Where there is a ſtrong tide up a channel or gulf, and the gale commences at low water in the direction of the flood tide, I have known it to riſe four or five feet higher; and if this gale drops at or about high water, it will ebb out near two feet lower at low water, than if there had been no gale. This I have frequently obſerved, and it ariſes from the forced accumulation produced by the wind at high water, which gives the ebb a greater ſtrength, and makes it continue till it is below its common level.

I was informed at Madras, that on the 20th of May the tide was about two feet above what is commonly known: Mr. Parſon mentions fifteen feet at Ingeram, and ſome accounts from Coringa to Madras, talk of eighteen or twenty feet; but as Coringa is near the ſea, the waves might have deceived them.

It is alſo reaſonable to ſuppoſe that it would not have ſo much effect to the ſouthward of Point Gordewar, as the land there trenches much to the weſtward.

If I have been more particular than may be thought neceſſary in deſcribing thoſe gales, my intention was to ſhew that the navigator is not to depend upon any particular deſcription, ſo much as to expect the ſame in every gale that happens in thoſe ſeas, between the oppoſite Monſoons: they are as variable in their effects as the gales in our climate, with this difference, that their duration is generally of leſs continuance on account of the quick changes and ſhort diſtances of the different ſpecific gravities of the atmoſphere, that produce them. For inſtance, if from clouds, or any other cauſe, the ſun's rays are prevented from heating or rarefying the atmoſphere in a certain part, and that weſt forty leagues upon the land the atmoſphere be clear, they would heat and rarefy this the more, and render it lighter. A perſon ſituated centrally between this denſer and rarer medium, would find the wind eaſt, and blowing from the firſt to the latter, with force reſpectively proportional to the difference of ſpecific gravity: ſuch a gale probably would not laſt an hour, as we are not to ſuppoſe

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poſe that the air paſſes the whole diſtance; it is even probable that no part of the firſt air paſſes over one-third of this ſpace; for one particle of air puts another in motion, and thoſe between will of courſe be forced forward; which being once impelled, by the laws of bodies in motion, muſt proceed till the ſecond or lighter part of the atmoſphere is more condenſed than the firſt; and the obſerver will find the wind return from the oppoſite point; but this return is generally the ſtrongeſt at the onſet, or ſoon after, and dies away by degrees. If the obſerver is placed in an angular poſition, *viz.* ſouth-weſt from the firſt, and ſouth-eaſt from the latter of thoſe mediums, and that the ſurrounding air is nearly of mean denſity between the two; he would then find the wind from a different direction, *viz.* from north-eaſt, or from the firſt, for the heavier air will proceed in every direction towards the lighter, but with the greateſt velocity to where it is lighteſt of all: and when this part is over-charged, he will find the return, not in the oppoſite direction, but from the north-weſt, or from the ſituation of the latter medium.

However at the ſame time of the year ſimilar cauſes may prevail, and generally the hardeſt of the November gales on the Coromandel coaſt are from the eaſtward. They begin in the north-weſt quarter, or far enough to the northward for ſhips to get out to ſea from Madras Roads, which is certainly adviſeable for ſafety; and after blowing hard from the north-eaſtward, they fly round to ſouth-eaſt, and terminate at ſouth-weſt; but this is not always the caſe, as before mentioned; for off Negapatnam, after the taking of this town in November, 1781, we had the firſt gales with ſqually weather from the north-eaſt quarter for ſeveral days; yet the heavy gale came from the ſouth-weſtward, and after which the weather was moderate for ſome time.

During the interval between thoſe changes of the Monſoons, the ſun is nearly vertical, and from the proximity of land, often occaſions very ſuddenly thoſe great differences of ſpecific gravity, which are the cauſe of this unſettled ſtate of the weather. But when the ſun has got ſo far north, or ſouth, as to render the cauſe general, and of ſufficient efficacy, the Monſoon ſets in ſteady, and thoſe gales ſeldom happen. The equinoxial gales in our climate may be ſaid to partake of the ſame cauſes in a leſs degree (being ſituated between the tropical heats and intenſe cold in a middle latitude), though the ſun's diſtance from the zenith diminiſhes his power, yet we often have heavy gales, and bad weather for a conſiderable length of time together.

The gales of wind in the China ſeas, commonly called *Tiffoons*, are not confined to any particular ſeaſon, but frequently happen, even in the height of both Monſoons. They are met with throughout the China ſeas, and a long way to the eaſtward of the Philippine Iſlands and are often very ſevere; it ariſes from the proximity of the iſlands to the ſouthward and eaſtward, which often counteracts the principal cauſe of the Monſoon. The bad weather puts on the ſame appearances as before mentioned, and gives warning to the navigator, who muſt be upon his guard; therefore, as I have ſaid already, though the Monſoons prevail in thoſe ſeas, and change at the ſame ſeaſon, they are not ſo ſteady as in the Indian ſeas.

WINDS

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## WINDS IN HIGH LATITUDES.

FROM the latitude of 30° to the Pole, in both the northern and ſouthern hemiſpheres, the winds are variable, but more prevailing from the weſtward, or weſt-ſouth-weſt in the northern, and from the weſt-north-weſt in the ſouthern latitudes; thoſe winds often extend to the Tropic, and ſometimes under the 20th degree of latitude.

In the higher regions of the atmoſphere, the clouds, which ſhew the direction of the wind, may often be ſeen to move contrary, or oppoſite to the wind; this I have often obſerved in a freſh trade-wind, for the ſun's great power between the Tropics rarefying the atmoſphere under his meridian (as mentioned in the former part of this chapter), it has not ſo much influence in the upper regions, where the atmoſphere is light; hence the winds, or the motion of the upper part of the atmoſphere, take a contrary direction to the trade-wind, in order to maintain an equilibrium; and as this upper part of the atmoſphere approaches the higher latitudes (the ſun having leſs influence), it deſcends to the ſurface of the earth, and becomes more prevailing than from any other quarter; this I conceive to be the general cauſe of weſterly winds prevailing in high latitudes, inclining to the ſouthward in the northern hemiſphere, and to the northward in the ſouthern hemiſphere, contrary to the direction of the reſpective trade-winds.

There is generally an interval of calm between the trade-winds and the oppoſite winds in high latitudes; for it could not be expected that the winds, in a contrary direction to the trade-wind, ſhould immediately prevail; yet if the trade-wind, in proceeding towards the higher latitudes, hang much to the eaſtward, it may draw gradually round; and ſhips often paſs from the trade into the variable winds, in high latitudes, without any interval of calm.

Notwithſtanding the general cauſe juſt mentioned of weſterly winds in high latitudes, accidental cauſes will occaſion frequent variations; for the weſterly winds generally inclining to blow from the tropical or warmer regions, as in north latitudes from the weſt-ſouth-weſtwards, as ſaid before, and being replete with moiſture from the great exhalation between the Tropics, as this moiſt atmoſphere approaches the cold and higher latitudes, it is conſequently condenſed into ſhowers of rain, hail, or ſnow, which render the ſun's influence, in high latitudes, the more uncertain, eſpecially between thoſe from 40° to 60°, for beyond the Arctic and Antarctic Circles, it being a fixed froſt, or cold, it is not ſo ſubject to ſudden ſhifts and heavy gales at any ſeaſon of the year.

Suppoſe then a ſituation in the Atlantic ocean in the 50° north latitude, with the Torrid Zone to the ſouthward, and the Frigid Zone to the northward, the wind from the ſouth-weſtward will prevail till the atmoſphere become condenſed heavier than in the lower latitudes; then the wind flies round (generally ſtrongeſt at the onſet, or ſoon after) from the colder climates, and blows till an equilibrium is reſtored, when a calm often prevails for a few hours.

We may, therefore, from the above cauſes, expect in general (after a northerly, or north-weſterly gale decreaſing to a calm) a ſoutherly wind, which ſprings up faintly at firſt, and keeps increaſing in ſtrength till the atmoſphere is charged with moiſture, and begins to rain; if

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if it blows hard, and the rain begins to fall heavy, we may ſoon expect the wind to fly round to the Weſt, north-weſt, or northward, and often to blow hard, making a croſs, confuſed, and dangerous ſea, for which the mariner ought to be upon his guard, and prepared to reſiſt it. The firſt of this gale is generally the ſtrongeſt, and may produce rain for a ſhort time, but it will ſoon bring a dry cold air, which ſometimes draws round into the north-eaſt quarter, and there fixes for ſeveral days, but often dies away in a calm; hence follows the ſoutherly wind. If the wind, after the ſhift from the ſouthward, keeps much to the weſtward, it may continue longer to be ſhowery weather, with ſqualls; and often it will draw back again to the ſouthward, with a repetition of rain and wind.

This I have obſerved to be the general courſe of winds agreeing with the above theory in northern latitudes, while it is the reverſe in ſouthern latitudes; the wind commencing after a calm from the northward, is increaſing with rain, and followed by the wind from the ſouth-weſt, which decreaſes to a calm.

It is ſcarce probable that human foreſight will ever be able to form any tolerable idea reſpecting the duration of winds, or the time of their change; the great alterations we have in weather from heat and cold, eſpecially about the Equinoxes, renders the winds very uncertain in thoſe latitudes; I have known, for ſeveral days together, the wind flying round in twenty-four hours, *viz.* in the afternoon calm; about ſun-ſet it ſprung up from the ſouthward, or ſouth-ſouth-eaſt, and put to courſes by midnight; about 2 A. M. flying to weſt-north-weſt, or north-weſt, a hard gale; it died away about 2 P. M. into a calm, and after this repetition, fixed in a weſt-ſouth-weſt almoſt continual, with bad weather for ſeveral weeks. I was once ſix weeks from Ireland to the Grand Bank of Newfoundland, during which time we had no winds from the eaſtward; and I have been near as long in beating off the Cape of Good Hope during the laſt war, when ordered not to come near the Cape before half that diſtance could be attained; ſo fixed are the winds ſometimes in the Weſtern Quarter.

Did this general cauſe not exiſt, we ſhould, probably, in northern latitudes, after an increaſing ſoutherly gale had condenſed the air to the northward; we ſhould have, I ſay, a north, or north-eaſt wind, from the overcharge, which ſometimes is the caſe; but the general cauſe being prevalent, the wind takes a direction in general from the joint effect of both, *viz.* from the north-weſtward, and as the weſterly or northerly predominates inclines more or leſs to the weſt or north.

What I have mentioned above is the common courſe of bad weather in the Ocean; and we often have ſeaſonable weather with pleaſant breezes for a long time together, eſpecially in the ſummer ſeaſon; but near the ſhores of continents, and on land, the weather differs conſiderably; for though, in this iſland, the winds from the north-eaſt quarter often bring rain, yet thoſe rains are ſupplied from the ſouth in the upper regions of the atmoſphere, which, meeting with northerly winds, is condenſed into rain, ſnow, or hail, according as the cold predominates: and although it more frequently happens that the ſoutherly wind prevails, yet it is ſometimes the reverſe, and the wind from the north-eaſt continues with dry weather, which muſt follow in conſequence, if the moiſture is not

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ſupplied from the ſouthward; hence we may eaſily conceive the cauſe of having more rain falling in high latitudes than the moiſture taken up in evaporation can afford, and leſs rain between the Tropics than the exhalation.

On the weſtern coaſt of England we often experience a heavy ſouth-weſt ſea breaking upon the ſhores, which indicates that ſuch a wind is prevailing in the Ocean while the wind is north-eaſtward; and I have ſometimes known the ſouth-weſt wind to reach within a few leagues of the coaſt, for a day or two, with north-eaſt wind or calm. I have not a doubt that the ſame may often be the caſe on all the weſtern ſhores of Europe.

If in the interval of calm the day be remarkably warm, with a clear ſunſhine, we may expect the heavier gales to follow, eſpecially about the Equinoxes, or in the winter ſeaſon; for the warmth, by rarefying the atmoſphere, is more the prognoſtic of a gale than a commencement of ſettled weather.

The great loſſes ſuſtained by this maritime country on the Ocean, are in general much increaſed by thoſe gales taking the navigator unawares; and it is better to ſecure the ſhip, though diſappointed in your conjecture, and with ſome loſs of time, than to ſuffer diſtreſs by being unprepared. We have often known old crazy ſhips to bring home cargoes, almoſt free from damage, through ſuch gales, in company with much better veſſels which have foundered, or received conſiderable damage in their cargoes; this difference muſt have happened, on one ſide from the degree of precaution which was thought requiſite to preſerve the weak ſhip, and on the other from the mariner's blind confidence in the ſtoutneſs of his veſſel. I have heard a gentleman of experience remark, that the greateſt damage ſuffered in the cargoes of the Eaſt India Company has generally been in tight ſhips.

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# *DIRECTIONS*

FOR SAILING FROM

# ENGLAND

TO THE

# CAPE OF GOOD HOPE.

## OF THE PREVAILING WINDS IN THE ATLANTIC AND ETHIOPIC OCEANS.

AS it is eſſentially neceſſary for the navigator to have a thorough knowledge of the direction of ſuch winds as chiefly prevail through the whole extent of thoſe ſeas which he is obliged to paſs over, we ſhall treat here, in the firſt place, of the winds moſt commonly

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commonly met with, as well in the Atlantic as in that part of the Southern or Ethiopic Ocean, compriſed between the Equinoctial Line and the Cape of Good Hope.

In the European ſeas, and even as far as the 28th, and ſometimes the 20th degree of latitude, the winds are variable, and blow ſometimes from one quarter, ſometimes from another, without appearing to be ſubject to any conſtant rule, in whatever ſeaſon of the year it may be. This ſame ſhifting of the winds prevails equally in the ſouthern hemiſphere beyond the 28th degree.

From the 28th degree of north latitude, to the Equinoctial Line, we find thoſe regular winds, commonly called *Trade-Winds*, which blow from the N. N. E. to Eaſt, during the whole year. This rule, though general through the whole extent of the Atlantic Ocean, is yet liable to many exceptions, eſpecially near the coaſts of the Continent, in the neighbourhood of iſlands, and in other places, from particular cauſes.

In examining the journals of the moſt experienced and intelligent navigators, we generally remark, that the coaſts of thoſe vaſt Continents, which lie between the Tropics, are almoſt always blown upon obliquely, from ſeaward, by winds whoſe direction is relative to thoſe that prevail in the extenſive ſurrounding ſeas. It is in conſequence of this law, the natural cauſe of which is well aſcertained, that on the African coaſt from Cape Blanco as far as Sierraleon, the winds (excepting always land-breezes and ſtorms) blow rather from the North to N. W. than from the North to the weſtward.

From Sierraleon to Cape Palmas, the ordinary courſe of the winds is from W. N. W. and beyond Cape Palmas from W. S. W. to S. W.

Though the Canary Iſlands lie within the tract of the trade-winds, yet we find weſterly and ſouth-weſterly winds ſometimes prevailing there; which may continue for eight days ſucceſſively without interruption.

Southerly and ſouth-weſterly winds blow alſo before the Cape Verd Iſlands, and in their neighbourhood, during the months of July, Auguſt, September, and October; and in that ſeaſon of the year it is by no means ſafe to frequent the Roads of theſe Iſlands.

Moſt of thoſe who have treated of the trade-winds have laid down their limits towards the Equinoctial widely differently from what they are in reality in each ſeaſon; the inferences which might be drawn from ſuch aſſertions, would miſlead navigators, and we muſt, on a ſubject of ſo much importance, have recourſe to facts and experience in preference to common opinion.

After a careful inſpection into above 250 journals, to find in what degree of latitude veſſels which ſail to the Eaſt Indies have loſt trade-winds, and on what parallel of latitude they have met with them on their return, it has appeared to me, ſays Monſ. *D' Après de Mannevillette*, that in the month of January, the limits of the true trade-winds are found between the 6th and 4th degree of north latitude: in February we meet with them between the 5th and 2d degree; in the month of May between the 6th and 4th degree of latitude.

During the months of June, July, Auguſt, and September, the action of the ſun's rays upon the lands and ſeas in the northern part of the globe, renders the winds leſs conſtant



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by altering the ſtate of the atmoſphere; ſo that in the month of June, the trade-winds diſcontinue blowing at the 10th degree of latitude; and in the months of July Auguſt, September, between the 14th and 13th degree; nor do they finally reſume their mean boundaries but in the months of December and January.

When we leave the trade-winds, we meet with variable winds, calms, and ſtorms, occaſioned by the conflux of the trade-winds with the general winds; and by many other particular cauſes, which prevent us from fixing exactly the extent and direction of the trade-winds in each reſpective ſeaſon.

The *Calms* experienced by ſhips, particularly in going to India, appear to depend on the vicinity of the coaſt, which they approach much nearer when bound to the Cape of Good Hope, than in the rout from that Cape to Europe; accordingly the paſſages from the Cape to Europe are much ſhorter than thoſe from Europe to the Cape. The calms that are met with to the northward of the Equinoctial Line are owing to the configuration of the Coaſt of Africa, which, to the North, a few degrees from the Line, projects about five hundred leagues toward the Weſt; while the great diſtance at which a ſhip is from this land, when ſhe is to the ſouthward of the Equator, prevents the general wind of theſe ſeas from undergoing thence any change.

It is remarked, that the nearer you approach to the ordinary tract of the trade-winds the more the ſhifting above mentioned is affected by it; and on the other hand, when you are near the Equator, the winds vary more frequently from Eaſt to South, than from Eaſt to North: but this does not prevent you from finding winds ſometimes blowing in the ſame tract from Weſt to South, and chiefly in the months of July, Auguſt, and September. But theſe winds almoſt always proceed from ſtorms, and ought only to be looked on as foreign, or occaſional winds, deſtined to reſtore the equilibrium of the atmoſphere when the air is too much rarefied to the eaſtward.

From the Equinoctial Line to the Tropic of Capricorn, a regular trade-wind prevails, which blows generally and conſtantly between the South and the Eaſt; and as the ſame winds are prevailing, not only in the Ocean compriſed between Africa and America, but even over the whole extent of the ſeas ſouthward of the Line; they are named

*General Winds*, in order to diſtinguiſh them from the north-eaſterly trade-winds, which in ſome particular ſeas are ſubject to periodical variation.

Dr. *Halley*, whoſe authority in every thing which relates to navigation merits our utmoſt regard, obſerves, that the different ſeaſons have a ſenſible influence on the direction of the trade-winds, as well as upon that of the general winds; ſo that when the ſun is at the greateſt declination North of the Equator, that is to ſay, when he is in the Tropic of Cancer, the S. E. wind, particularly in that part of the Ocean between Braſil and the African ſhore, will vary a quarter, or half a point of the compaſs more to the ſouthward; and that the north-eaſterly trade-wind veers more to the eaſtward. The contrary will happen, ſays Dr. *Halley*, when the ſun is near the Tropic of Capricorn, the winds blowing from the S. E. veer a little more to the Eaſt, and thoſe blowing from the N. E. which prevail to the northward of the Line, hang a little more to North than to Eaſt.

During a whole year's reſidence at the iſland of St. Helena, Dr. *Halley* obſerved, that the general

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general winds reigned there conſtantly from the S. E. or thereabouts, that is, the wind which blew moſt frequently, veered rather from S. E. to eaſtward, than from S. E. to ſouthward; when it blew from the Eaſt, the weather was dark and gloomy; and it never cleared up, nor was ſerene till the wind veered back again to S. E. Dr. *Halley* ſays, alſo, that he never obſerved the wind to blow from the South to weſtward, nor from North to N. W.

Beſides, if from the effect of a ſtorm, or any other particular cauſe, the winds take a different direction from that which they commonly have in the ſame tract, theſe accidental differences are to be made an exception to conſtant and general laws.

The extent of the general winds is not limited at the Line; they are met with as far as five or ſix degrees to the northward of it, and ſometimes even to ſeven degrees, according to the ſeaſons. Sometimes the N. E. and S. E. trade-winds extend very near each other, and at other times there will be an interval of ſeveral degrees between them ſubject to calms, ſqualls, thunder, lightning, and heavy rains.

The general winds, as well as the trade-winds, always take a different courſe along the coaſts of the Continents, from what they do out at ſea. All along the coaſt of Africa, from the 28th degree of ſouth latitude down as far as Cape Lopo Gonſalvez, which lies near the Line, the direction of the wind is almoſt always from South to S. S. W. and even to S. W. in ſome places, according to the particular bearing or ſituation of the ſhores and lands; it is obſerved, likewiſe, that the ſame tendency of the winds from South to S. W. is met with at a very great diſtance from the coaſt of Africa, and that in general it appears to be bounded to the weſtward by the tracts compriſed between that coaſt, and an imaginary line drawn from the Cape of Good Hope to Cape Palmas on the coaſt of Guinea.

On the coaſt of Braſil, the general winds are ſubject to periodical ſhiftings, according to the reſpective ſeaſons; they blow there from N. E. to E. N. E. from September to March, and from S. S. E. to E. S. E. from the month of March to the month of September.

In the courſe which veſſels commonly ſteer in their paſſage from the Equinoctial Line to the Cape of Good Hope, we remark, farther, that the winds beyond the parallel of ſixteen degrees veer to the northward, ſo that they are obſerved rather to blow from Eaſt to N. E. than from Eaſt to S. E. This is not general, though often the caſe.

With reſpect to the limits of theſe general winds that are commonly fixed at the 28th degree of latitude, this is another general rule which has its exceptions, ſince we frequently meet with different winds before we reach that latitude, and ſometimes even on this ſide the Tropic of Capricorn to the ſouthward of twenty, or twenty-one degrees, for example, weſterly winds are met with in the months of June, July, and Auguſt. Though from the parallel of twenty-eight to forty degrees of ſouth latitude, the winds ſometimes have been found as variable as in the European ſeas; it is known from experience that you muſt run into a high latitude for the ſake of conſtant weſterly winds, and as you approach to the ſouthward, the weather becomes boiſterous, and the winds blow from N. W. to S. W. ſometimes an eaſterly wind happens, but ſeldom laſts long.

In the parts adjacent to the Cape of Good Hope, the winds blow ſometimes from S. E. E. S. E. for many days ſucceſſively without intermiſſion, but in general you have eaſterly or weſterly winds, according to the ſeaſon of the year.

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# *DIRECTIONS*

FOR SAILING FROM THE

# BRITISH CHANNEL

TOWARDS

## PORTO SANTO, MADEIRA, THE CANARIES, THE CAPE VERD ISLANDS, AND TO THE EQUINOCTIAL LINE.

HAVING ſailed out of the Channel, you ought to ſhape your courſe ſo as to paſs Cape Finiſterre at the diſtance of 50 or 60 leagues; a leſs diſtance is even ſufficient in any ſeaſon of the year, and you may indeed double that Cape very near, juſt as circumſtances require; but from its latitude you ſhould always ſteer for the iſland of Madeira.

Though the making of that iſland is not indiſpenſably neceſſary, it is very proper, however, to get a ſight of it, or of the iſland of Porto Santo, that you may be able to keep on your courſe afterwards with greater certainty; whether you paſs between the Canary Iſlands, or whether you propoſe to leave them to the eaſtward. It is to Madeira and Porto Santo that ſailors have given the name of the *Madeiras*.

At the diſtance of 28 leagues, N. by W. from the northernmoſt point of the iſland of Porto Santo, there are ſeveral rocks even with the water, the ſouthernmoſt of which lies in 34° 30′, and the northernmoſt in 34° 45′; ſo that the whole extent of this ledge is 5 leagues from North to South, and 3 leagues from Eaſt to Weſt; obſerve likewiſe that the ſouthernmoſt rock lies 40 leagues N. 5° E. from the eaſternmoſt point of Madeira.

Three leagues to the north-eaſtward of the middle of Porto Santo, there lies alſo a ledge of ſunken rocks, on which a Dutch veſſel was loſt.

PORTO SANTO lies about 12 or 14 leagues to the north-eaſtward of Madeira, and has a very good road on the ſouth-weſt ſide, wherein you may anchor in 12 fathoms, and where good water and refreſhments can be got: ſhould you get into the latitude of this iſland to the eaſtward, and not ſee it, your courſe ſhould be W. by N. $\frac{1}{4}$ N. by compaſs. Porto Santo is very remarkable, and may be ſeen in fine weather, 15 or 20 leagues off. When you firſt make it you will diſcover two or three very high hummocks, by which it is diſtinguiſhed from either Madeira, or the Deſertas. Being abreaſt of Porto Santo, and about 4 or 5 leagues to the ſouth-weſtward of it, the courſe will be W. by S. $\frac{1}{4}$ S. or W. S. W. by compaſs, to carry you through between Madeira and the Deſertas.

The DESERTAS, or, as the Engliſh ſailors call them, the *Deſerters*, lie nearly North and South by compaſs, the largeſt inclined to the N. N. weſtward; when they bear W. by N. about 10 leagues diſtant, they appear in two ſeparate iſlands, the northernmoſt, or Flat Deſerter,

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Deſerter, being nearly even, long, and high; the ſouthernmoſt, or *Bugio*, appearing in two hummocks, almoſt as high and about two-thirds long: at 6 or 7 leagues diſtance, a ſmall iſland off the northernmoſt extreme, becomes diſcernible like a low wall, and cloſe to this is a high rock, like a pyramid, frequently miſtaken for a large ſhip under ſail. The paſſage between the two Deſertas is clear, though bounded on each ſide by breakers, or rather by a ſurf, but not to be attempted unleſs from neceſſity, being very narrow, and no ſoundings, or at leaſt very deep water in it; and a ſhip is liable to be becalmed in it by the northernmoſt Deſerter, which overlaps the Bugio.

The ISLAND of MADEIRA is very high land, except the eaſt end, which terminates in a low rugged point; but is frequently covered with clouds, ſo that it is ſcarce viſible at 5 or 6 leagues diſtance, and even ſometimes you get quite cloſe before you diſcover it.

Between the Deſertas and Madeira is a clear paſſage 8 miles broad, and no danger but what can be ſeen, but no ſoundings in it, except at 50 or 60 fathoms, almoſt cloſe over to the Madeira ſide. In the ſeaſon of the breezes (i. e. of the N. E. winds which prevail in ſummer) there is a ſtrong current through this paſſage towards the S. W.

Off the Valley of Funchal there are regular land and ſea breezes, particularly during the ſummer; the ſea breeze ſetting in from the ſouth-weſtward ſome time in the forenoon; the land breeze coming off ſhore about ten o'clock at night, ſometimes later, even to two or three o'clock in the morning. Theſe breezes do not extend above 3 or 4 miles off ſhore, but when it blows freſh in the offing, there is generally a counter-breeze in the ſtream of the Valley of Funchal; unleſs it blows hard, then the true wind prevails alſo in the road, although, if from the ſouthward, it never blows hard quite home, but throws in a very large hollow ſwell, which makes it unſafe at thoſe times. Theſe Southweſters, or South-ſouth-eaſters are never expected except in January, February, and the beginning of March: large ſhips almoſt always ride them out, but it is moſt prudent for ſmall veſſels to go out of the Road on the appearance of them.

Squalls ſometimes come freſh off the land; there is one inſtance of a hurricane down the Valley of Funchal, blowing every ſhip out of the road in January, and being ſo violent, that the ſhips were hid from the town by the ſpray of the ſea it raiſed, although in a clear ſun-ſhining day.

From all this it appears adviſable for ſhips, however large or numerous, bound into Funchal Road from the eaſtward, with the wind north-eaſterly, to go through the paſſage between the Deſertas and Madeira, ſteering as near the midchannel as poſſible, and not to borrow on the Madeira ſhore too ſoon. After you have paſſed the Deſertas, you ought to ſteer for the low point to the weſtward of Funchal town, and not keep too near the Brazen Head, until you are almoſt off the town, and then haul directly in for the road. The Brazen Head is a high ſteep cliff to the eaſtward of the road, whoſe form, in ſome directions, appears not unlike to the ſtern of a very large ſhip. Veſſels, coming too cloſe the Brazen Head, have frequently been baffled a good deal by eddy winds and calms, and obliged to get their boats out and tow; but on the contrary, by keeping as before obſerved, they will

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in general bring the breeze on with them, and when they loſe it, they will find it veer to the ſouth-weſtward; nevertheleſs, if in the night a ſingle ſhip ſhould keep very near to that bluff point, and with her boats towing a-head when becalmed, luff up into the ſtream of the land wind, and by that means fetch into the anchorage; ſhe muſt alſo ſhew a light at her enſign-ſtaff, to prevent being fired at from the caſtle.

Soon after you have paſſed the Deſertas, you will deſcry the ſhips in Funchal Road, and be able to judge from their riding how the wind is in the road, as it is very common that a veſſel ſhould paſs theſe iſlands with a ſtrong breeze from N. E. or Eaſt, while the ſhips are riding ſometimes with the wind from the ſouth-weſtward, and ſometimes from the weſtward.

In ſteering in for the road you will ſee the Loo, a large rock, a little to the weſtward of the town, on which there is a Fort bearing N. by E. $\frac{1}{2}$ E. or N. by E. by compaſs; and letting go your larboard anchor in 36 or 38 fathoms water, be ſure to have two cables on it, for if you come in with a freſh breeze from the eaſtward, you ſcarcely bring up till you have veered the ſplice out a good way. To ride in the road, prudence requires that it ſhould be with a whole cable, with the ſplice in ſuch a manner, that ſhould you be obliged to put to ſea on account of the weather, and not be able to weigh, you may be able to cut near the ſplice. While there, you ought to keep a ſhip-buoy on the cable; carry out your kedge anchor with the nine-inch hawſer to the weſtward, to ſteady the ſhip, and let the hawſer be on the ſtarboard bow, on account of the uſual courſe of the wind veering from the eaſtward to the ſouth-weſtward, and then to the weſtward. When the land wind comes off, you will have a croſs, but then the end of the hawſer may be ſhifted at pleaſure.

The beſt anchorage is in from 18 to 30 fathoms, ſand, to the ſouth-eaſtward of the Loo Rock, having the Citadel (called alſo the Spaniſh Caſtle, a brown ſquare fort on a hill over the W. N. W. part of the town) well open to the eaſtward of the Loo Rock; to the weſtward of this, the ground is ſand and rock; to the eaſtward ſtiff clay, but deep water, and near the eaſt edge of the bank, which is very ſteep on this ſide, foul ground and rocky. If you come in with a freſh eaſterly wind, when you bring to, in order to anchor, it is proper to do it with the ſhip's head to the ſouthward, for ſhould any thing happen to prevent your bringing up, the ſhip's head being off, you can make ſail, or do any thing you pleaſe. If from over caution, or other reaſons, you ſhould fall 2 or 3 leagues to the leeward of the road, you ought to keep plying up in the ſtream of the valley, until you fetch into the vein of the ſea breeze.

There is generally a ſurf on the beach, early in the year particularly, which prevents landing in a ſhip's boat any where, except within (to the north-weſtward of) the Loo Rock, about half a mile from the town; therefore the boats of that place are employed for goods, watering, &c. The tides riſe and fall about 7 $\frac{1}{2}$ feet; and the current along the South ſide of the iſland ſeems to be always governed by the true wind in the offing. The rainy ſeaſon is in January, February, and March; October is alſo frequently a wet month.

The ſmall veſſels from North America, and the Weſtern Iſlands, come in generally round the weſt end of Madeira, but they are frequently becalmed a conſiderable time under the high land there. For this reaſon, ſhips on leaving Funchal ſhould make ſail with the

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the land wind, and ſtand directly off from the road; ſhips bound to the ſouthward, by taking a contrary method, have continued ſeveral days becalmed under the weſtern part of the iſland.

From the iſland of Madeira to the Equinoctial Line, you may direct your courſe ſo as to get a ſight of, or to paſs between the Canaries, and from hence to proceed to the Cape Verd Iſlands; or you may ſteer farther to the weſtward, without ſeeing any of the iſlands. This courſe appears preferable, which carries you without the Canaries, ſo as to go about 30 or 40 leagues to the weſtward of Cape Verd Iſlands; though you lengthen your diſtance by it, yet you ſhorten your paſſage by getting conſtant freſh trade-winds in lieu of light winds and calms, which are common among the iſlands, and you avoid ſeveral dangers in their neighbourhood. When to the ſouthward of St. Yago, or in the latitude of it, haul as cloſe as you pleaſe, according to the ſeaſon, ſo as to meet variable winds far enough to the eaſtward, and be able to puſh ſouthward, and croſs the Line from 18° to 22° Weſt of London; it is needleſs to loſe time in endeavouring to croſs far to the eaſtward, for your paſſage depends upon getting through the variable winds into the S. E. winds; and when in them to go with the yards not braced up, and flowing ſheets. The little difference is eaſily made up by the weſterly winds you are certain to meet with to the ſouthward.

If it is your intention to paſs by the CANARIES, a courſe nearly S. by W. ¼ W. ſteered with an open wind (the variation allowed and true courſe found) will get you a ſight of theſe iſlands, which will be eaſily known in referring to the Views engraved on the Charts. When circumſtances require it, you may paſs between the Canaries and through their principal channels, where there is no danger but what may be plainly diſcerned, except a ſunken rock laid down in the Spaniſh Charts, at the ſouth end of the channel between TENERIFFE and Canaria, about 5 leagues Weſt of Canaria, and 7 leagues S. E. of the ſouth point of Teneriffe. In ſailing from Funchal to the former Iſland, you muſt keep well to the weſtward, to clear the *Salvages*, which are very dangerous in the night. The road, or port of Santa Cruz in the Iſland of Teneriffe, though not remarkably fine, is the beſt in the Canaries, and the uſual at which veſſels touch for refreſhments. Should you have any occaſion to ſtop there, particular care muſt be taken in going in, not to bring any part of the town to the northward of Weſt, for fear of the calms occaſioned by the high land under the Peak; you would then be in danger of driving upon the rocks on the ſhore, and when aſhore will have no ground on the oppoſite ſide of the ſhip with two hundred fathoms of line, ſo that anchors and cables are of no uſe.

This is an excellent refreſhing place, on account of the facility with which are procured all the vegetables of Europe, with the exception of cabbages; which, although very ſmall, are very dear. Here are generally found all the fruits of Europe, and the ſame domeſtic animals as in our ports of England. Water is very good at Santa Cruz, and eaſily procured when the ſwell is not too heavy.

When you leave the Canaries, if the want of water or other refreſhments ſhould oblige you to touch at St. Yago, the principal of the CAPE VERD ISLANDS, your beſt way is to fetch either the iſland of Sal, or that of Bonaviſta, directing your courſe about S. S. W.



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till you come in the latitude of the firſt, 16° 50′, with about 11° W. variation, when you will be 12 or 14 leagues to the eaſtward of it. Then a W. by N. courſe will keep you in that parallel nearly, obſerving to make allowance for the variation, as well as for a ſoutherly current, which you have always amongſt and near theſe iſlands.

The iſland of SAL is a high bold iſland, with a peak upon it that may be ſeen a great way in clear weather. On its weſt ſide lies *Mordeira* Bay, one of the beſt in the Cape Verd Iſlands. The iſland of BONAVISTA (properly *Boaviſta*) is very uneven land, having many ſcattered hillocks and mountains, with vallies and very low lands down to the water's edge; the S. E. point is a very low ſpit of land, whoſe extent you do not perceive till you are near it. Theſe two lands bear from each other North and South about 7 leagues, and you cannot paſs abreaſt of their channel without ſeeing them both. As ſoon as you get ſight of them, keep to the Eaſt of Bonaviſta, and when you have paſſed it, ſteer for Mayo, which lies about 14 leagues S. S. W. from the latter. The land of MAYO riſes moſt towards the middle of the iſland, whoſe north point is diſtinguiſhed by a ledge of rocks which ſtretches out near three-fourths of a league into the ſea; and under its ſouth weſt point is *Engliſh Road*, where you can anchor in 7 or 8 fathoms water.

Though it may ſeem natural enough not to ſuſpect any errors in conſequence of the reckoning in ſo ſhort a paſſage as from the Canaries to the iſles of Cape Verd, yet there are inſtances of ſuch, as well to the eaſting as to the weſting, ſo that you ought to keep 12 or 14 leagues to windward of Bonaviſta, before you ſtand in to make the land, leſt in ſteering a direct courſe for that iſland, you ſhould paſs between the iſle of St. Nicholas and the iſland of Sal; and finding yourſelf to the weſtward of Bonaviſta, when reckoning to be ſtill to the eaſtward of it, you ſhould miſs the iſland of St. Yago. You muſt be careful on that courſe of the *Bonetta Rocks**, which lie 22 leagues to the eaſtward of the channel between Sal and Bonaviſta; and alſo of a ſtill more dangerous reef of rocks nearer Bonaviſta: according to the Portugueſe pilots, this lies at about 6 leagues from the iſland, having one cable's length in breadth, and about two in length. The Engliſh account places that ſhoal 10 leagues N. E. of Bonaviſta, about 1½ foot above water, with 13 fathoms cloſe aboard of it.

We muſt obſerve here, that ſhips coming from the northward, in ſteering a different courſe from that recommended above, have often miſſed the iſland of St. Yago, and the diſappointment muſt be attributed to the two following cauſes. 1ſt. In the ſeaſon of the year they want to touch there, the ſun being near the zenith of the iſland, their obſervations cannot be very correct. 2d. At this time alſo the fogs are ſo very thick all round the Cape Verd iſlands, that you can ſcarcely deſcry them.

* According to the plan given of the Bonetta Shoal and Rocks, by Mr. *Robert Norris*, of Liverpool, their extent is about 3 and a half miles from S. W. by S. to N. E. by N. and the greateſt breadth about 1 and a half mile. They lie 42 leagues E. by N. from the northernmoſt end of Bonaviſta. Two miles and a half to the ſouthward of them, you have 35 fathoms water, ſmall white gravel ſtones; then 30, ſame ground; and then at 1 and a half mile, 20 fathoms, red coral rocks.

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In running from Bonaviſta to St. Yago, and being obliged to ply to windward during the night, you muſt be cautious how you approach Iſle Mayo, on account of the ledge before mentioned at its north point; when you have doubled that point, you ſhould ſteer S. W. to make the land of St. Yago, and keep along the coaſt till you come to the Road of Praya, which is the common place of anchoring. You may alſo paſs to ſouthward of Mayo in ſailing for the Road of St. Yago, and after doubling the ſouth point of the iſland, you ſteer for making land to windward of the point of Port Praya.

The South Eaſt part of the Iſland of St. YAGO appears a long low point when you are to the northward or ſouthward of it; and from this point S. W. by S. about 6 or 7 miles lies the eaſt point of Port Praya Bay. Between the two, and near the former, lies a Bay which ſo much reſembles that of Port Praya, that many veſſels, deceived by this likeneſs, have ran the hazard of being loſt in this dangerous place; at the bottom of it are ſeveral cocoa nut trees, and a few houſes; the land between this and the aforeſaid point of Port Praya is moſtly perpendicular, in ſome places appearing like the Berry Head in Torbay; and though the Fort of Port Praya, which ſtands on a ſmall cliff, is a mark by which the true bay may be diſtinguiſhed from the falſe one, yet the moſt certain mark is that the North or Eaſt point of the falſe bay is ſurrounded with breakers, whereas the point of Port Praya is high and ſteep, and free from ſhoals; you muſt haul cloſe round this point, and keep within a cable's length of the ſhore to go to the anchoring place.

PORT PRAYA is a fine bay, which lies between two points bearing from each other W. by S. and E. by N. about a mile and half. As you ſail round the eaſt point, you will ſoon open the Fort at the bottom of the bay, to the weſtward of which, in a valley, are ſeveral cocoa nut trees and a ſmall houſe.

The winds, except in the Tornado ſeaſon, are generally in the N. E. quarter, and frequently blow freſh and fqually; therefore, as you haul into the bay, it is neceſſary to have the top-gallant ſails furled, and to take one reef or more in the top-ſails. The cliffs from the eaſt part to the Fort are as thoſe above deſcribed; you may ſail within a cable's length of the eaſt land, where you will have 8 or 7 fathoms water, and in many places ſee the ground in that depth.

In this bay lies a ſmall black iſland called the *Iſle of Quails*, or *Frenchmen's Iſland*; it is almoſt even to the top, but rugged at each end, and ſome rocks lie off its ſouth end about half a cable's length; there is alſo a rocky ledge off the north end, where the water is in general ſhallow; you will not have more than 3 fathoms between this and the Fort; inſide, or to the weſtward of the iſland, it is only navigable for boats.

The beſt anchorage is to bring the Fort N. W. $\frac{1}{2}$ N. about one mile, the eaſt part of Quails Iſland W. by S. or W. by S. $\frac{1}{2}$ S. $1\frac{1}{4}$ mile; there you will have 7 or 8 fathoms; many commanders, however, prefer to anchor nearer the N. E. ſide of the Bay than the Iſle of Quails, for the ſake of more eaſily getting under ſail, without running the riſk of being carried by the currents upon the point of rocks to leeward, before the veſſel has got freſh way enough to ſteer clear of them.

A general opinion has prevailed, that ſhips bound to the Cape of Good Hope, who paſs the Equinoctial Line, within certain limits of longitude, have a ſhorter paſſage than



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thoſe who happen to paſs it too far Eaſt, or too far Weſt. The whole extent of the limits aſſigned is between the 26th and the 12th degree of longitude Weſt of London; as weſtward of the 26th degree ſhips are expoſed to be driven towards the coaſt of Braſil, and eaſtward of the 12th degree they are threatened with calms of long duration, and currents that would carry them on the coaſt of Africa. Without rejecting abſolutely that opinion, it muſt be obſerved, that the firſt of theſe two inconveniences, is the only one confirmed by experience; as for the ſecond, there is ſcarce one inſtance to be met with which in the leaſt favours it.

Veſſels which ſail from St. Yago to the Equinoctial Line, ſhould ſteer S. E. as far as the 12th degree of latitude, after that S. E. by S. till they meet with the S. E. trade-winds. When in the variable winds between the N. E. and S. E. trade-winds, the beſt method of working, for croſſing the Line with ſpeed, is to take the advantage of the ſhifts of wind; and for this end to keep indifferently to that tack which bears moſt to ſouthward; at the ſame time keeping in 20° of Weſt longitude, or to the eaſtward, when you meet the S. E. trade-wind: this often, when you firſt meet it, and for ſome days, hangs much to the ſouthward, eſpecially in the months of July, Auguſt, and September, ſo much ſo, that ſome ſhips have not been able to weather Cape St. Auguſtine on the coaſt of Braſil. Having got the S. E. trade, if it be tolerably favourable, keep a clean ſail, ſo as to make the moſt ſouthing; for about the Equator there is generally a weſterly current, and the longer you hang in it, the more you will feel its effect; therefore if you keep a point free through the S. E. trade, you will find the advantage in the end, by getting ſooner into the variable winds in high latitudes, which prevail from the weſtward at all ſeaſons of the year; though ſometimes they blow ſeveral days together from the S. E. and by turns from all quarters. Between 20 and 30 degrees of ſouth latitude the S. E. trade generally draws to the eaſtward, N. E.—North, and N. W. and often, between the trade and variable winds, you will meet with light airs and calms; but having free winds you ſhould make a S. E. courſe good, till you get into latitude of 33° to 36° ſouth, if you intend to touch at the Cape; if not, 36° or 38° South is the beſt latitude for running down your eaſting. It has been formerly recommended, as an indiſpenſable requiſite, to ſtrike ground on the Bank of Cape Lagullas, to take a freſh departure, but if the navigator makes Lunar obſervations, he muſt be as certain at leaſt in his longitude as thoſe ſoundings will determine; beſides much time is loſt in ſhortening ſail, and bringing to to ſound. There are alſo, in general, ſtrong weſterly currents ſetting over this bank, but in 37° or 38° ſouth latitude, the current generally ſets towards the Eaſt, by which means you will accelerate your paſſage to the eaſtward.

In this paſſage it will be proper to keep a good look out, there being ſeveral ſhoals to the ſouthward of the Equinoctial, whoſe ſituation, though not preciſely aſcertained, is laid down in the Chart from authentic report; they lie alſo in the track which is followed by ſhips going to Braſil, as well as in that which they often injudiciouſly keep on their return from the Indies. As for the iſlands that are ſcattered in the Ethiopic Ocean, and which ſhips may likewiſe expect to meet with, we ſhall take notice of ſome of them in the next article, and of the others in the laſt ſection of this work.

If you intend to touch at the coaſt of BRASIL, attend to the following Directions.

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# DIRECTIONS

FOR GOING TO THE

# COAST OF BRASIL,

AND FOR SAILING FROM THENCE TO THE

# CAPE OF GOOD HOPE.

## ISLE OF FERNAND DE NORONHA,—PORTUGUESE ISLAND OF ASCENSION,—RIO JANEIRO,—ISLE OF TRINIDAD,—ISLES OF TRISTAN DA CUNHA,—GOUGH'S ISLAND, &c.

WE muſt begin by obſerving that ſtopping to refreſh on the Coaſt of Braſil is very prejudicial in voyages made to India and China; the delays which it occaſions expoſe veſſels to the danger of miſſing the principal places they are bound to; eſpecially if the time of their paſſage ſhould be limited: or, at leaſt, they run the riſk of not arriving as ſoon as might be convenient. To this we may add the loſs which the ſhip's crew may ſuffer by thoſe epidemical diſtempers that frequently happen after having reached the coaſt of Braſil. Two motives only can oblige you to make that coaſt, which are the abſolute neceſſity of careening the veſſel, and the extreme want of freſh water.

Veſſels which intend to touch at the Coaſt of Braſil, ought to pay due attention, in order to make the land to windward, according to the periodical winds blowing on this coaſt, and which commonly determine the ſet of the currents there, either to the northward or to the ſouthward.

Theſe periodical winds prevail from S. S. E. and E. S. E. from the month of March quite to the month of September, and then the current runs to the northward. From the month of September quite into March, the winds that blow from N. E. and from E. N. E. drive the waters to the ſouthward; for this reaſon veſſels, in the firſt caſe, ought to make land to the ſouthward of the place they are bound to, and to the northward of the ſame place, in the ſecond caſe.

In this track you may get ſight of Fernand de Noronha (pronounced Noronia), whoſe longitude and latitude, as well as its diſtance and bearings, from the Braſilian coaſt, are well aſcertained.

FERNAND DE NORONHA is remarkable by a high rocky peak, called the *Pyramid*, very barren and rugged, and by its S. W. point, named the *Hole in the Wall*, which is pierced through, and gives a free paſſage to the ſea. The ſouth point is diſtinguiſhable by a little rocky Iſlot, that appears like a ſtatue. The iſland is about ten miles long, and between 2 or 2 $\frac{1}{2}$ miles broad, producing black cattle, ſheep, poultry, melons, corn, &c. with wood and water in abundance. It is the rendezvous of veſſels employed in the ſouthern Whale Fiſhery, for procuring thoſe ſupplies, and the ſhips in the African trade frequent it for the ſame purpoſe: ſhould you be obliged to approach it, you have no ſoundings till very cloſe



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in, but no danger but what may be ſeen, except a rocky ſpot on the ſouth ſide, 3 miles off ſhore. You muſt anchor in the Road on the north ſide of the iſland in 13 fathoms, looſe ſandy ground, about one mile off the ſhore. Fernand de Noronha is inhabited by Portugueſe exiles, and has a ſtrong garriſon, all the little ſandy bays and anchoring places being defended by forts; but there are no women on the iſland. There is good freſh water to be got here from a well near the governor's houſe, but you are obliged to roll your caſks over ſome rocks, and ſwing them off to the boat, on account of the ſurf. The wood is cut on a little iſland near the north point of the large one; it is called *Wood*, or *Wooding Iſland*, and it produces god graſs, with ſome wild goats, but there is great riſk of ſtaving the boat while you take the wood off the rocks, as it ſinks, if thrown into the water. If the Portugueſe would let you cut wood on the main iſland, you might load without much danger, in the fine ſandy bays to the weſtward of the Road.

If you ſhould happen to paſs between Fernand de Noronha, and the Coaſt of Braſil, you muſt take notice, that about 15 leagues weſtward of the iſland there lie the *Roccas*, which are low ſandy keys, with ſhrubs upon them; they cannot be ſeen in the cleareſt weather above three leagues from the maſt-head; at their north-eaſt is a pretty high rock, and the ſea breaks exceedingly high all round them. A ſhoal lies alſo, according to the Portugueſe, about 25 leagues to the S. W. and another diſcovered by the Engliſh, 45 leagues to the W. N. W. of Fernand de Noronha.

In general, veſſels ſhould endeavour to make the Coaſt of Braſil, if bound to Rio de Janeiro, about the latitude of 22° or 23°. Cape Frio, a remarkable headland near Rio Janeiro, lies in 22° 41′, and in the paſſage to that Cape you will meet with ſoundings above 30 leagues off the coaſt, between 17° 30′, and 19° of latitude from 30, 33, 18, 15, 27, 36, 40, 33, and 38 fathoms water; and then at 10 leagues eaſt of Cape Frio you will get 50 fathoms, rocky ground.

Rio de Janeiro, commonly Rio-Janeiro (River January), called alſo St. Sebastian, is at preſent the capital city of all Braſil, and has been for ſome time the reſidence of the Viceroy. The entrance of its Harbour, one of the fineſt in the world, is ſituated about 22 leagues W. by S. from Cape Frio, and may be known by a remarkable hill in the form of a ſugar-loaf, at the weſt point of the Bay; but as all the coaſt is very high, and riſes in many peaks, that entrance of the harbour may be more certainly diſtinguiſhed by the iſlands that lie before it, one of which, called *Redonda*, or Round Iſland, is high and round like a hay ſtack, and lies at the diſtance of $2\frac{1}{4}$ leagues from the entrance, in the direction of S. by W. but the firſt iſlands that are met with coming from the Eaſt, or Cape Frio, are three ſmall iſlands that have a rocky appearance, lying near to each other at a point diſtant 7 miles from the harbour.

The entrance of this harbour is not wide, but the ſea breeze, which blows every day from 10 to 12 o'clock till ſun ſet, makes it eaſy for any ſhip to go before the wind; and it grows wider as the town is approached, ſo that abreaſt of it there is room for the largeſt fleet in 12 or 15 fathoms water, with an oozy bottom; at the narrow part the entrance is defended by two forts, *viz*, *Santa Cruz*, the largeſt on the eaſt ſide, and *St. Joao*, or *Luzia*, on

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on the weſt ſide of the Bay. The diſtance between them is about one mile, but the channel is not quite ſo broad, becauſe there are ſunken rocks which lie off each fort, and in this part alone there is danger. The narrowneſs of the channel cauſes the tides, both flood and ebb, to run with conſiderable ſtrength, ſo that they cannot be ſtemmed without a freſh breeze. The rockineſs of the bottom makes it alſo unſafe to anchor here; but all danger may be avoided by keeping in the middle of the channel. Coming from the Eaſt into the harbour, you muſt ſtand directly for the *Sugar-Loaf*, and ſteer right in, almoſt cloſe to it, then haul over for the next point above, or within the point and Fort Santa Cruz; when oppoſite to that you are clear of all hidden danger; within the entrance the courſe up the bay is firſt N. by W. $\frac{1}{2}$ W. one league more will carry her to the *Iſla das Cobras*, which lies before the city; ſhe ſhould then keep the north ſide of this iſland cloſe on board, and anchor above, before a monaſtery of Benedictines, which ſtands upon a hill at the north-weſt end of the city.

There is a regular tide here of 7 hours $\frac{3}{4}$ ebb, and 4 hours $\frac{1}{4}$ flood, with little or no ſlack, and it runs at the rate of 3 knots and $\frac{1}{2}$, or 4 knots per hour. It ebbs and flows N. E. and S. W. on the full and change, and then it is high water about half an hour after four o'clock. Here is a yard for building ſhipping, and they are very expert at heaving down, but the riſe of the tide is ſo inconſiderable, that they cannot have any docks.

Ships that get water at this place have it conveyed in pipes, their boats lying along ſide the jetty: a hoſe is fixed to a cock, and the oppoſite end put into the caſk; then they water with eaſe. The water is very good, although Captain *Cook* has obſerved, that after having been two months at ſea, confined to the water in their caſks, which was almoſt always foul, no body on board his ſhip could drink with pleaſure the water taken at Rio Janeiro.

Proviſions, except wheaten bread and flour, may be eaſily procured at Rio Janeiro: as a ſuccedaneum for bread, there are yams and caſſada plenty; beef, both freſh and jerked, but very lean, may be bought very cheap. The people here jerk their beef by taking out the bones, cutting it into large but thin ſlices, then curing it with ſalt, and drying it in the ſhade: it eats very well, and if kept dry, will remain good a long time at ſea: mutton is ſcarcely to be procured, and hogs and poultry are dear; of garden ſtuff and fruit there is abundance, of which, however, none can be preſerved at ſea but the pumpkin; rum, ſugar, and molaſſes, all excellent in their kind, may be had at a reaſonable price; tobacco alſo is cheap, but it is not good.

If the winds carry you ſo far to the weſtward that you get ſight of Trinidad, you may paſs between that iſland and the three ſmall iſlots of Martin Vas to the E. N. E. of it, or you may ſail to the windward of all, as the wind will permit.

The Iſland of TRINIDAD, or TRINITY, called by the ſailors *Trinidada*, lies about two hundred and twenty-four leagues E. by N. from Cape Frio, in 20° 34′ latitude South, and 29° 58′ longitude Weſt of London, according to the obſervations made by the Engliſh in 1781. In approaching it from the eaſtward, running on its parallel, you make the three iſlots or rocks of *Martin Vaz*, which may be ſeen at the diſtance of 8 or 9 leagues from the ſhip's deck. Theſe rocks are very remarkable, and cannot be miſtaken; they lie North and

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and South from each other, the diſtance from the outer rock being about three miles. The centre rock is very high, with tufts of withered graſs ſcattered over its ſurface; the other two are entirely barren; there is a paſſage between the ſouthernmoſt and centre rocks. The northernmoſt almoſt join. In clear weather Trinidad is diſtinctly ſeen from the rocks of Martin Vaz, and may be deſcried 16 leagues off.

This iſland is about 6 miles in circumference, the land very unequal, and at beſt no more than a cluſter of rocks, with ſome ſhrubs in the vallies. The northernmoſt ſide is quite barren, but to the ſouthward all the interſtices of the rocks are filled with ever-greens of ſeveral kinds: you alſo find there a quantity of ſea fowl and rock fiſh, and many wild hogs*. The generality of the wood is very ſmall, though there are trees of 18 inches diameter towards the extreme heights. Trinidad is ſurrounded by ſharp, rugged coral rocks, with an almoſt continual ſurge breaking on every part, which renders the landing often precarious, and watering frequently impracticable; nor is there a poſſibility to render either certain, for the ſurf is often incredibly great, and has been ſeen during a gale at S. W. to break over a bluff which is 200 feet high.

The iſland is ſupplied with very good water from two ſmall ſtreams down the eaſt and ſouth-weſt ſides of it, beſides a ſmall iſſue from the rock, which forms the ſouth-weſt extreme; not one of them will fill a tube of 6 inches diameter, and there is a doubt whether theſe runs are temporary or perennial, though they always produce a ſmall quantity of water ſufficient to preſerve the exiſtence of a few wretched inhabitants. Lieutenant *Thomas Hamilton*, from whoſe account this detail of Trinidad is chiefly extracted, ſpeaking of the anchorage, ſays, that they anchored off the weſt ſide of the iſland, at a mile from the ſhore, to be able to weather it on any tack, ſhould the wind happen to blow on, "being directed," continues that gentleman, "to do ſo by Captain *D'Auvergne*, who informed us of the wreck of the *Rattleſnake*, and the miraculous eſcape of the *Jupiter*, and *Mercury*." They prudently avoided the common anchorage, which is about a muſket ſhot from ſhore, in 18 or 20 fathoms water. On that ſide there ſtands a ſtupendous *Arch*, or hole in the rock, like that at Fernand de Noronha, and two very remarkable rocks, one called the *Monument*, and the other the *Sugar Loaf*. The Monument is 850 feet high, of a cylindrical form, and almoſt detached from the iſland, with large trees growing on its top. This had been named the *Nine Pin* in the year 1700, by Dr. *Halley*. The Sugar Loaf, at the ſouth-eaſt end, is 1160 feet high, of a conical form, with trees likewiſe on its ſummit, and whenever it rains hard, a caſcade of above 700 feet, whoſe water becomes of great uſe, makes there a beautiful appearance. The arch is a natural paſſage made by the ſea through a high bluff about 800 feet high; it is forty feet in breadth, near 50 feet in height, and 420 in length, the depth of water above 3 fathoms. When the ſea is moderate you ſee through this arch into

* "Captain *Edmund Halley*, afterwards Dr. *Halley* of the *Paramore* Pink, landed on this iſland April 17th, 1700, and put on it ſome goats and hogs for breed, as alſo a pair of Guinea hens, which he carried from St. Helena. "I took, ſays his journal, poſſeſſion of the iſland in His Majeſty's name, as knowing it to be granted by the King's Letters Patent, leaving the Union Flag flying." When the Engliſh went to Trinidad in 1781, in order to aſcertain whether a ſettlement was practicable there, they did not find it, after a ſurvey of two months, to anſwer their expectation. Commodore *Johnſon* planted various roots on the different heights, but they all died in a ſhort time for want of water.

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the only bay in the iſland, and have a view of a diſtant rock covered with trees, which renders the proſpect extremely pictureſque.

The above detail of Trinidad, and chiefly of its anchorage, given in 1781, is very different from a deſcriptive note which Captain *Charles Leſley*, of the *Orford* Man of War, has introduced in his very inſtructive journal, in 1773 and 1774; we think, therefore, it would be unpardonable not to tranſcribe here the whole of that gentleman's deſcription. "This Iſland," ſays the note, "is laid down in common charts in 18° 30′ South; but its true latitude, by a good obſervation of my own, is 20° 28′ South. The longitude, made from the Meridian of London, is generally between 25° and 30° Weſt. I never knew leſs made than 25°, or more than 30°; and I judge 30° to be the true longitude, as in a very fair and quick paſſage from this Iſland to Cape, Frio on the coaſt of Braſil, I made 12°: 00 Weſt longitude, and the Cape, by the beſt computation, is in 42°: 00 Weſt longitude from London. The variation, in ſight of the iſland, was 1° 20′ Eaſt; in 1768, it had been obſerved to be only 0° 37′ Eaſt.

"The Directions for ſailing into the harbour," (ſo the Captain calls it) "are thus—When the rocks of Martin Vaz (which are E. by S. ſoutherly, diſtant 7 leagues from the iſland) bear E. S. E. and the eaſternmoſt point of the iſland N. E. by E. the bay begins to open, wherein, at the upper end, you will ſee a hill like a ſugar-loaf, and a mile from the ſhore you will have ground at 45 fathoms, coarſe ſand; on the mouth of the bay you have 35 fathoms, and by the time you get this length, or very ſoon afterwards, you will perceive three bays, one right a-head, called the Northernmoſt, or Middle Bay, and one on either hand, called the Eaſternmoſt and Weſternmoſt Bays. The eaſt is by far the beſt, the weſt being full of rocks, and the northernmoſt having ſhoal water, and being open quite to the ſea. The eaſt bay is likewiſe diſtinguiſhed by a church with a large croſs upon it, which ſtands at the upper end of it; you may anchor in 6 fathoms, the church bearing W. S. W. and a point like the South Foreland bearing S. W. by W. and thus ſituated you may moor your ſhip with only one cable on ſhore.

"The watering place is near the church, and you may lay your long boat under, and fill with a ſpout or hoſe. The iſland lies in the direct track of the outward bound Eaſt India ſhips, and they always endeavour to go to the eaſtward of it; but if the S. E. trade does not prove very favourable, they either fall in with it, or go to the weſtward."

This uncertainty of the S. E. trade, mentioned by Captain *Leſley*, is confirmed by Lieutenant *Hamilton*, who ſays, "We firſt ſaw it (the iſland) on the 5th of June, on our paſſage to the Cape of Good Hope, we had then variable winds and calms; and on making it the ſecond time, the 8th of November, we had exactly the ſame winds and weather, accompanied by a very heavy ſquall of wind from the weſtward. During our ſtay there above two months, the prevailing wind was N. N. E. from hence I conclude the S. E. trade-wind is not to be depended on, although the iſland is ſo far within the Tropic of Capricorn."

Near 80 leagues to the Weſtward of Trinidad there lies another iſland, which is called Aſcenſion by the Portugueſe Pilots, who deſcribe it as follows:

"The Isle of Ascension lies in the ſame latitude with the Iſle of Trinidad, and at 120



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leagues from the Coaſt of Braſil; it was diſcovered by *John de Nova*, in his paſſage to India in 1501. It conſiſts of very high land, and on the north ſide of it lies a cove, with a river of freſh water; adjoining to this cove there is a cavern into which the ſea enters: it lies at the foot of a high mountain ſhaped like a peak or ſugar-loaf, which anſwers nearly to the middle of the iſland. On the eaſt ſide you deſcry another mountain nearly of the ſame ſhape, but not ſo lofty, and theſe two mountains are the higheſt in this iſland; on the weſt ſide lie 5 ſmall iſlots, or rocks, one of which, that ſtretches the fartheſt out to the ſea, is the loftieſt and moſt diſtinguiſhable; it reſembles a ſhip under ſail. This iſle is deſert, and covered with thorny ſhrubs; fowl and fiſh are to be met with there in abundance.

Notwithſtanding the credit which ought to be given to a deſcription ſo circumſtantial, many navigators have been and are ſtill of opinion, that this iſle is nothing more than Trinidad itſelf, which, by the inequality of its ſurface, appeared under as many different forms as the ſhip, from whence it is deſcried, varied her poſition. But the exiſtence of Portugueſe Aſcenſion has been confirmed in 1760, by *M. Duponcel de la Haye*, Captain of the French frigate *La Renommée*, who having ſailed by the rocks of Martin Vaz the 4th of June, paſſed afterwards to the northward of Trinidad, from which he kept a weſt courſe, and on the 8th of June made the Iſle of Aſcenſion; he ſaw diſtinctly a mountain ſhaped nearly like a chimney. According to the above courſe of *La Renommée*, Aſcenſion ſhould be about 100 leagues diſtant weſtward of Trinidad, and its latitude 15 minutes more ſoutherly. The frigate, after ſailing on about 120 leagues to the weſtward, touched at Cape Frio, and from thence arrived at Rio Janeiro*.

About 65 leagues to the N. W. of Aſcenſion, and 80† from the coaſt of Braſil, in 17° 30′ latitude, there begins a bank of ſoundings, which extends to the ſouthward above 40 leagues; the *True Briton* and *Royal Captain* had ground on the north part of it in 1761; the *Endeavour*, Captain *Cook*, on its Weſt end in 1768; and the *Greenwich*, Captain *Benjamin Hook*, in her paſſage to Bombay in 1767, ſailed on it above 80 miles. This bank may be uſeful in correcting the reckoning of the ſhips, which ought to ſound carefully in this latitude.

To the Weſtward of, and between the 20th and 21ſt degrees of latitude of Trinidad, at the diſtance of 120 leagues, The Old Charts, after the Portugueſe Pilot, lie down four iſlands, which they call *Martin Vaz* Iſlands: three of them are diſtinguiſhed by the names of the Firſt, the Second, and the Third Martin Vaz; and the other, which ſhould lie 80

* The exiſtence of this iſland is ſtill conteſted by many navigators. Lieutenant *Hamilton* ſays, in his account of Trinidad, "I am inclined to believe theſe rocks (meaning thoſe of Martin Vaz) were originally called Trinity from their number, as well as the iſland now called Aſcenſion. As all theſe iſlands are laid down in the ſame parallel of latitude very nearly; and the *Jupiter* and *Mercury* men of war have determined that there is not any land within ſome degrees of the longitude in which the iſland is laid down by modern geographers." Upon this opinion of Mr. *Hamilton*, M. *Dalrymple* has made the following remark: Captain *Paiſley*, of the *Jupiter*, was in the latitude of 20 deg. 16 min. S. when 90 leagues to the Weſt of Trinidada; the *Montague* places ASCENSAO in 19 deg. 35 min. S. latitude, and 4 deg. 35 min. W. from Trinidada, ſo that the *Jupiter* could not have ſeen *Aſcenſao* if the ſituation aſſigned to it by the *Montague's* journal be right.

† According to the reckoning; but Mr. *Dalrymple's* correction removes the ſoundings of the *Endeavour* forty leagues more to the Weſt.

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leagues more to the weſtward, bears the name of *Santa Maria D'Acoſta*. It is almoſt needleſs to ſay here, that all thoſe iſlands are imaginary.

When you are paſſed the length of Trinidad, as the variable winds you will meet with beyond it, blow more frequently and much longer from the northward than from the ſouthward, you ought by no means, in ſailing towards the Cape of Good Hope, to go up a high latitude, in hope of finding the Weſterly winds to blow there with more ſteadineſs. It has been already remarked, and it is repeated here, that all experience contradicts this ſuppoſition. It is only when you approach the Cape, and at about 200 leagues at moſt on this ſide, if you intend to double it, that you can keep between 35 and 36 degrees of latitude, by reaſon of the South-eaſterly winds which blow frequently in thoſe parallels.

After thoſe winds are left that ſeem moſt commonly to ſucceed the general winds, if the courſe, bearing much more to the South than it is ſuſpected here, ſhould carry you (which will happen to ſhips early in the ſeaſon) in ſight of the Iſles of Triſtan da Cunha, you may keep out to ſea as you paſs them, or fall between them without danger, as circumſtances ſhall require.

In the run from Trinidad to thoſe iſlands, and at about 160 leagues north-weſtward of them, lies the little Iſle of SAXEMBURG in 30° 49′ South latitude. It was diſcovered in 1670, by a Dutchman, who has given us a view of it, very remarkable by a narrow peak like a column in the middle of the iſland; it does not appear to have been ſeen by any other navigator ſince the diſcoverer. Weſtward of this, at the diſtance of about 40 leagues, there are ſome breakers; but Captain *Smith*, in the Daniſh Eaſt India Company's ſervice, by whom they were ſeen, does not ſeem entirely convinced that it was a ſhoal; however it is proper to keep a good look out in paſſing this place. The Portugueſe Charts, which take no notice of thoſe breakers, place a ſhoal above 70 leagues to the northward of Saxemburg, in the parallel of 27° 15′. To the eaſtward of Saxemburg, and above 200 leagues from the Cape of Good Hope, the Dutch draughts mention the KATTENDYKS DROOGTE, or Shoal.

The ISLES of TRISTAN DA CUNHA, or D'ACUNHA (pronounced Da Counia), diſcovered by the Portugueſe in their firſt navigations, were explored and deſcried by the Dutch, in 1643, in the ſhip *Heemſteede*. The Dutch ſeem to be the firſt who have landed there, at leaſt if we may judge by this circumſtance, that the ſea gulls, which they found there in abundance, would let themſelves be caught by the hand. Theſe iſlands are three in number, forming a triangle, whoſe north point is the largeſt iſle, which is called Triſtan D'Acunha; the two other iſlands were named in 1767, by the French, *viz.* The weſternmoſt, *Inacceſſible* Iſland, and the ſmalleſt, or ſouthernmoſt, *Nightingale* Iſland.

The journal of *L'Etoile du Matin*, then commanded by Monſ. *D'Etchevery*, gives the following account of the French exploration: " Ninth September, 1767, at 5 A. M. I made the three iſlands of Triſtan D'Acunha, bearing Eaſt and E. by N. diſtant about 10 or 12 leagues; the wind then weſterly, I ſteered Eaſt to examine the middle iſland, which is the weſternmoſt; and being at noon abreaſt the north-eaſt point, I ſounded at a mile diſtance



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from the ſhore; and when the middle of the iſland bore Weſt, had 20 fathoms, black ſand, and ſmall reddiſh ſtones.

" This iſland is high, flat at top, and may be ſeen at 15 or 16 leagues diſtance; it is about 2 leagues in circuit, and appears barren, ſteep, and inacceſſible; ſome ſcattered ſhrubs are only to be ſeen on it; I perceived no danger near it, only a rock, like a boat under ail, is viſible at the ſouth-eaſt point.

" I ſtood on, leaving this iſland, to examine the ſmalleſt, which is 3 leagues diſtant to the S. E. It has at the N. E. point two iſlots, ſeparated from it about 50 paces, and which have the appearance of an old ruined fort; I paſſed along at piſtol ſhot diſtance: continuing to ſteer along the iſland, I found ground at 30 fathoms, and, when its middle bore W. S. W. I anchored in 33 fathoms, coarſe brown and reddiſh ſand.

" The night threatened bad weather. I poſtponed ſending the boat aſhore till morning: according to the report made to me, it is ſo full of ſea weed twined together, that there is much trouble to approach the barren rock which forms this iſland. The reeds with which it is covered, did not let them penetrate the iſland, beſides the great numbers of penguins, the eggs of which are ſo cloſe together, that the men could not walk without breaking them; theſe difficulties, and the want of freſh water, which they ſearched for in vain, induced them to return on board. They ſaw plenty of fiſh on the coaſt, and aboard many were caught. There are ſome large ones, a good deal like cod. The latitude of this iſland is 37° 24′ South.

" The 10th of September I weighed anchor in the morning, and ſteered towards Triſtan d'Acunha, the largeſt of theſe three iſlands, which lies about 5 leagues to the N. N. E. of the little one. It is about 5 leagues in circumference, and ſo high that it may be ſeen 25 leagues off. The peak in the middle of it is covered with ſnow, and the land down to the ſea is only covered with buſhes. In coaſting the iſland very near, after doubling the north-weſt point, I deſcried a caſcade which falls into a little bay; I ſent the boat to ſound this part, and as they found 18 fathoms cloſe to land, and 30 at a $\frac{1}{4}$ of a league from the ſhore; I anchored in the latter, gray ſand mixed with ſmall pebbles.

" The boat which went on ſhore found no difficulty in approaching it, but from the entangled ſea-weed which bars all the coaſt: they brought aboard a caſk of freſh water, and informed me it was eaſily got, but they could not land, except to the larboard hand of the caſcade, on a beach of round pebbles, about the ſize of an egg; to the ſtarboard of the caſcade are rocks on which the ſea breaks much.

" The ſhore is covered with ſeals and ſea-lions; we caught plenty of fiſh, eſpecially the kind of cod before ſpoken of."

We ſhall add to this deſcription of Monſ. *D' Etchevery*, that the weſternmoſt, or Inacceſſible Iſland, is the iſland which riſes with a large blunt top, very much like a hay-cock; and that the variation obſerved at thoſe iſlands in 1776, was 5° Weſt. You may generally know when you approach them by the ſea-weeds floating on the water, and ſometimes met with very far out at ſea.



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The Old Engliſh Pilot knows only one of thoſe Iſlands, which he deſcribes thus: "*Triſtian de Cunha*, lies in the latitude of 37° 7′ S. and longitude of the Lizard about 10 ½ degrees W. This iſland is ſteep to, about half a mile from the ſhore, 13 and 14 fathoms, and ſo decreaſing gradually to 3 fathoms cloſe to the ſhore. There is no ſhoal, nor broken ground lying off it, except a ſmall matter off the points. It is very difficult getting aſhore there with a boat in ſome places, for near the ſhore there is large-bodied trees growing under the water, the tops of which lie almoſt even with the ſurface, ſo that in going aſhore you are forced to row in and out amongſt the boughs; about a piſtol ſhot from the ſhore ſide there is freſh water to be had, but the way is very ſtony, ſo that you cannot well get it aboard without rolling on boards, or handing it. There you will find abundance of ſeals, ſome of them very large, which you may cut down with an ax, for they will not reſiſt you. Here is abundance of drift wood, and ſeveral ſmall ſprings among the rocks; in ſome places you may eaſily land. Here are neither goats or hogs, or, by report, any other creature but theſe ſeals, except a ſtrange ſort of bird which goes upright.—*Note.* That three quarters of a mile off this iſland, there is no ground with 100 fathom line."

At the diſtance of 180 leagues E. S. E. from the iſles of Triſtan da Cunha, lies a ſmall iſland, which, from the name of its diſcoverer, Captain *Charles Gough*, of the *Richmond*, has been called GOUGH'S ISLAND. It was explored alſo in 1758, by Captain *Frederick Vincent*, of the *Oſterly*, who being early in the ſeaſon kept to the ſouthward, in latitude 40° South, and ran a great many degrees to the eaſtward in that parallel. We ſhall give here an extract of the journals of both ſhips.

*Captain* GOUGH'*s Journal, 3d March*, 1732.

"At 5 A. M. ſaw land bearing S. E. by S. about 17 leagues off us; I ſtood away for it, and as I neared it, hauled more ſoutherly to go round it. I got the yawl ready, and caulked here, and bent the ſtream anchor, deſigning, if I found any proſpect of landing, to ſend the boat aſhore, and got the fiſhing tackle ready.

"At noon, latitude obſerved 40° 10′ South. The iſland bore E. by S. then had a good obſervation, and made the iſland to lie in 40° 10′ S. As I rounded the iſland, ſaw ſome ſtreams of water running down, but all ſeemed inacceſſible; and under the lee of it ſaw porpoiſes, albatroſſes, and ſea fowls, and ſome ſmall birds with black heads and red beaks, ſuch as we have near the iſland of St. Paul's; two of theſe birds I obſerved laſt night, which made me imagine we were near ſome land. I kept pretty near in ſhore till I had got two-thirds round it, and had brought it N. W. by W. and finding nothing to be done, bore away. A freſh gale at N. W.

"This is a very high iſland, and about 5 or 6 miles long; it is called in old Portugueſe draught, *Gonçalo de Alvarez*. I make this iſland to lie in longitude 2° 58′ Eaſt from the Lizard; and as I judge, here is no variation atall by my laſt obſervation."

*Mr.*

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*Mr.* NICHOLAS JACKSON'S *Journal, 3d March,* 1732.

" Saw an iſland, bearing S. E. by E. about 16 or 18 leagues diſtant, tolerably high; we ſtood away for it, in order to run cloſe under the lee of it, with deſign to ſend our boat if acceſſible. At 8 A. M. the body of the iſland bore S. E. by E. 8 or 9 leagues diſtant, latitude obſerved 40° 15′ South; longitude 16° 27′ Eaſt from Palma. It bore E. by S. 2 or 3 miles diſtant, now ſtanding round the ſouth-weſt point to leeward.—4th, We luſt cloſe round the ſouth-weſt point of the iſland, and on the ſouth-eaſt ſide, being the leewardmoſt; found very ſmooth water, but had hard ſqualls and ſudden puffs; and no place, by what we could diſcern, convenient for landing, being in all appearance a ſteep and rocky ſhore. We obſerved, as we ſtood along the ſouth-weſt ſide, 2 or 3 large runs of water coming from the hills and gulleys, which muſt be undoubtedly good and fit for uſe, and what at that time we ſhould have been very fond of, could we by any means have got at it. At 2 P. M. bore away. At 3 P. M. the iſland bore N. W. by W. 5 leagues diſtance.

" This iſland, by very good obſervation, I make to lie in latitude 40° 15′ South; difference of longitude from the Lizard 2° 50′ Eaſt. We have had it cloudy and without ſun for ſeveral days paſt, as when we made the iſland, therefore got neither amplitude nor azimuth, but I judge it to lie in little or no variation, if any thing weſterly."

" *Note.* This iſland is not taken notice of in any of our Engliſh or Dutch draughts, believing it was never before diſcovered by either of them; but I have ſince, in an old map of the world, by *Francis Gualle*, a Spaniard, in the year 1584, found laid down in the ſame latitude, an iſland called de Gonzalo Alvarez, but upwards of 10° to the eaſtward of where we found it, therefore, probably, it may not be the ſame. This iſland is much about the height of St. Helena, but I judge not altogether ſo large; it is rocky all round, and ſeemingly barren, appearing inacceſſible for boats landing, though ſmootheſt to the S. E. ſide, where the hills appear greeniſh, intermixed with ſhrubs, but no trees to be ſeen. I imagine it to be ſteep all around, by the water not being in the leaſt diſcoloured about it. We had no opportunity of ſounding, by reaſon of the hard ſqualls we met with to leeward, which likewiſe prevented ſending our boat aſhore as intended. At the north end of the iſland, about two ſhips length from the ſhore, ſtands a high ſpiring rock, with ſome ſmall ones about it, which at the firſt, when you raiſe it, appears like a ſail, but as you advance upon it, has the true reſemblance of a ſmall church with a ſpire: alſo on the north-weſt ſide appear two ſugar-loaves, remote from the iſland, and each other, of a tolerable height. When you come round the ſouth-weſt part of the iſland, you will ſee pouring from the mountains, as before mentioned, two or three large ſtreams of water, appearing fine and clear, and two little rocks, or iſlands, one of which reſembles Egg Iſland at St. Helena; but on the ſouth-eaſt ſide no rocks diſcernible but what are on the ſhore. As we paſſed to leeward of it, we ſaw trunk weeds, ſome ſeals, and ſeveral birds; ſome black plump birds like Cape hens, and ſome white birds with ſwallow-tails, ſomething ſmaller than a pigeon, flying very much like ſwallows, and what I have obſerved off the Iſland of St. Paul's; and ſome of them followed us from the iſland, of which we took two; they

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they are beautiful, one of a very light aſh colour, with a long red bill, black head, red legs, and web-footed; the other was ſpotted like a hawk on the back and wings, with a long black bill, and web footed, with black legs."

*From the Journal of the* OSTERLY, *March 27th*, 1758.

"We ſailed upon ſeveral courſes between E. by S. ½ S. and S. E. by S. to ſee if we could find a landing place, in order to ſend a boat on ſhore, but obſerved it very ſteep to the water edge, and a great many rocks a ſmall diſtance off, with a very great ſurf, therefore could ſee no ſafe place to land our boat. The clouds, all this morning long, have continually hanged over the iſland, ſo that we could not ſee the top of it, being very high, and ſeeming to be barren; we ſeeing only a few ſhrubs, and two rivulets of water. This iſland lies in latitude 40° 19′ South, per obſervation, and in longitude 16° 25′ Eaſt from Ferro, one of the Canary Iſles."

Veſſels ſailing towards the Cape of Good Hope will find the variation of the compaſs, when an azimuth can be taken, of the greateſt ſervice in thoſe ſeas for finding out very nearly their diſtance from the Cape. The variation increaſes as you ſail eaſtward, and decreaſes on the contrary as you ſail weſtward.

# CAPE OF GOOD HOPE.

## *DIRECTIONS*

FOR GOING INTO AND OUT OF

## TABLE BAY.—SALDANHA BAY.

THE CAPE of GOOD HOPE, whether you come from the weſtward or the eaſtward, has the appearance of a large iſland, when you are at ſuch a diſtance as not to be able to diſcern the connection between the neck of its mountains and the other mountains. All the land about the Cape is very lofty, but the higheſt and moſt remarkable is the *Table Land*, a mountain about 3400 feet high, quite level on the top, and falling down perpendicularly at both ends, till it joins with the high lands near it. The eaſt part of the Table Land is connected with a high peaked hill called the *Lion's Head*, or the Devil's Mount, and alſo Charles' Mount; its weſt part joins with another hill equally high, which, from its ſhape, has the name of the *Sugar Loaf*. On the top of this the Dutch hoiſt a flag when any ſhips are in ſight; and to the north-weſtward of the Sugar Loaf is another mountain, much inferior in height, and called the *Lion's Rump*, on the top of which

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which a flag is alſo hoiſted. Whenever the Table Land begins to be covered with a cloud, it indicates a ſtrong Eaſt or E. S. E. wind, which, ſoon after the mountain is completely clouded, comes on and blows exceſſively hard, ſometimes 2 or 3 days together; with this wind ſhips frequently part their cables, or bring both anchors a-head; therefore it is uſual, as ſoon as they are moored in the bay, to ſtrike their yards and top-maſts.

The prevailing winds at the Cape of Good Hope are the S. E. and N. W. winds, the others ſeldom laſting longer than a few hours. The Eaſt and N. E are leſs frequent than any. The North and N. W. commonly blow in hurricanes, and bring on foul weather. The S. E. winds blow more or leſs in almoſt all the months of the year, but chiefly in the ſummer, or fair weather ſeaſon, when they are prevailing alſo from 200 leagues eaſtward of the Cape. The ſummer continues from October to April, then you generally have in the mornings regular ſea-breezes from S. W. and Weſt, which laſt till noon, and ſometimes longer; they are followed by a S. E. and E. S. E. wind coming off the land; this moſtly blows freſh the remaining part of the day, and all night till morning, when the ſea-breeze comes off again. In the Months of May, June, July, and Auguſt, the Weſt and S. W. winds blow ſtrong, being frequently accompanied with fogs and cloudy weather, but they are ſoon over. Sometimes violent N. W. winds prevail for ſeveral days together, and by fits in the other months; the ſky at this time is conſtantly clouded, and they generally end in rain. Theſe winds extend to the 27th degree of latitude South, and from 100 to the weſtward, to 200 leagues Eaſt of the Cape.

The cape is an excellent place for all kinds of refreſhments; and its climate being very wholeſome, the ſick ſeamen recover there very ſoon, eſpecially from the ſcurvy. Wood is a very ſcarce and dear article, but there is plenty of good water.

Veſſels which intend to touch at the Cape, ſhould take particular care always to make the land to the ſouthward of the entrance of TABLE BAY, and never to the northward, on account of the ſoutherly winds which frequently prevail there, and of the currents that ſet always to the northward; many ſhips, for want of this neceſſary precaution, have been driven towards the iſle of *Daſſen* or *Coney Iſland*, which lies 5 leagues S. by W. of the Bay of Saldanha, and 11 leagues N. W. by N. $\frac{1}{4}$ N. true bearing, from the entrance of Table Bay. This iſle is much lower than the Robben, called alſo *Penguin* Iſland. It ſhews breakers which run out near $\frac{1}{2}$ a league into the ſea; the anchorage is on the ſide next to the mainland.

Being off the Cape of Good Hope, you may ſail cloſe along ſhore, and have no danger till you are off Freeman's Point, where there are ſome rocks, ſtretching off a ſmall way into the ſea. Freeman's Bay is between this point and the ſugar loaf hill. You may go within 1 $\frac{1}{2}$ mile of the point in ſoundings of 52 and 53 fathoms, ſand. Then you ſteer at the ſame diſtance from ſhore, for Green Point (a low green Point) where you will have from 50 to 48, 40 and 34 fathoms, fine ſand and broken ſhells. Before you come to Green Point you will ſee *Penguin* Iſland, a low flat iſland, on the South of which they hoiſt a flag when ſhips are in ſight. From the foot of the Sugar Loaf to Green Point ſeveral rocks are viſible above water, lying at ſome diſtance from ſhore, and there is no hidden danger. Give

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theſe rocks a reaſonable birth as you run in, and you will ſhoalen your water gradually from 34 to 30, 26, 20, 16 and 12 fathoms, rocky bottom, ſo that there is no anchorage there. You may borrow upon Green Point to 10, 9, or 8 fathoms without danger; then ſteer up the bay, and you will have 8, 7, or 6 fathoms, regular ſoundings, but rocky, till you get about a mile to the eaſtward of Green Point, when the bottom becomes ſandy and fit for anchorage.

Should it happen, that when a-breaſt of Green Point, you meet with ſtrong fiery breezes from S. E. or E. S. E. blowing ſo hard out of the bay that your ſhip cannot turn to windward, which is frequently the caſe; then you muſt bear away for Penguin Iſland, taking care not to go within 2 miles of its ſouth or weſt ſides, for a ledge of ſunken rocks ſtretches to the Weſt 1 ½ mile off the ſouth-weſt end, and a rocky patch, called the *Whale*, even with the water, lies at the like diſtance to the S. W. of this ſame end; on both theſe dangers the ſea breaks very high in bad weather, but otherwiſe they do not appear, and become the more dangerous.

The weſt ſide of Table Bay is clear ground all over, but the north-eaſt part is all foul. You may anchor in Table Bay oppoſite the town, in 7, 6, or 5 fathoms, good holding ground. The beſt birth in the bay is the houſe on Penguin Iſland, bearing N. ½ W. Green Point N. W. ½ N. The flag ſtaff on the Lion's Rump W. ½ S. and the Lion's Head S. ½ W. in 5 fathoms, diſtant from the town 1 mile, and from the neareſt ſhore ½ a mile, you have another good birth in 6 ½ fathoms, about 1 ½ or two cables length farther to the eaſtward; but as there are veſſels almoſt always lying in this bay, you can be at no loſs for finding an anchoring place: ſhips may anchor on the eaſt ſide of Penguin Iſland*, in 12 or 14 fathoms, 1 or 1½ mile off ſhore, or within ¼ of a mile of it in 10 or 11 fathoms; there they are pretty well ſheltered from the ſouth-weſt ſea by the rocky ledge mentioned above. They lie at this iſland until the wind comes to S. W. or Weſt, which generally happens in the morning during the fair ſeaſon, then they weigh, and run to the proper anchorage in Table Bay.

It is extremely dangerous to remain in Table Bay after the 10th or 15th of May, on account of the N. W. winds, then daily expected to ſet in, and which blow ſo violently that no ſhip can poſſibly ride it out. The Dutch never ſuffer their ſhips to lie there after that time.

In ſailing out of Table Bay you muſt always go to the northward of Penguin Iſland, quite contrary to the directions which have been laid down for entering the bay. Such veſſels as, under pretence of a ſhorter cut, have attempted to ſail out by the South channel, have found it ſo dangerous, that they have been obliged to return, and go through the North channel.

The new moon makes high water at the Cape at ½ paſt 2 P. M. and the tide ſeldom riſes more than 3 feet, except after a hurricane, or by ſome extraordinary cauſe.

The variation of the Needle obſerved in Table Bay in 1792 was 24° 31′ 52″ Weſt.

We ſhall not terminate this article without taking notice of SALDANHA *(Saldania)* BAY,

* In this iſland, which is 2 miles long, and about one broad, the Dutch at the Cape baniſh, for a certain number of years, their criminals who are not thought worthy of death, and employ them as ſlaves in digging lime-ſtone, which, though ſcarce upon the continent, is in plenty here; nobody is permitted to land on that iſland ſince a Daniſh ſhip, which by ſickneſs had loſt great part of her crew, and had been refuſed aſſiſtance at the Cape, came down to this iſland, and, ſending her boat on ſhore, ſecured the guard, and took on board as many of the criminals as ſhe thought proper to navigate her home.



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which ought to be better known, and perhaps more frequented than it generally is. This Bay lies 15 leagues N. N. W. from Table Bay, and enters diagonally into the land about 7 or 8 leagues; on the larboard ſide, in coming in, you meet with a ſmall cove, called *Hoetjes Bay*, wherein 10 or 12 ſhips of the line can anchor on a good ground; Veſſels of a leſſer draught of water, may with eaſe go farther up, even to *Schaapen Iſland*, which ſhelters them from all intemperature. The water you find here is indeed inferior to that of the Cape; but in the bad monſoons, its nature alters ſurpriſingly, and it becomes excellent. The country people bring to the ſhips, who make any ſtay in this bay, all ſorts of proviſions, which you buy a great deal cheaper than at Cape-town; ſo that a Veſſel coming from Europe, and unable to fetch Table Bay, on account of the S. E. wind, can proceed to Saldanha Bay with a certainty of finding there plenty of refreſhments.

## DESCRIPTION
OF
## FALSE BAY,
AND DIRECTIONS FOR SAILING INTO AND OUT OF
## SIMON'S, OR SEAMAN'S BAY.

FALSE BAY lies at the ſouthern extremity of Africa, between the Cape of Good Hope, that forms its entrance on the weſt ſide, and Falſe Cape, or Cape Falſo, called ſometimes Hottentots Point, which terminates it on the eaſt ſide, and lies due Eaſt from Cape Point. The opening of the bay, from cape to cape, is near 5 leagues, and its extent to the northward between 15 and 16 miles.

From the Cape of Good Hope, as you are ſailing northward, you deſcry a ridge of rugged mountains which end at the entrance of Table Bay. The Table land that faces the road forms a part of them, and is eaſily diſcovered in clear weather from the entrance into Falſe Bay. On the eaſt ſide of the bay, and from the pitch of Cape Falſe, another ridge of mountains ſtretches out to northward quite to the bottom of the bay, and from thence to N. E. The interval between theſe two ridges conſiſts of low land: and the mountains you perceive over that low land, are at a great diſtance in the country.

The *Falſe Cape*, named *Hang-Lip* by the Dutch, on account of the aſpect of its mountain, is yet more eaſily diſtinguiſhed by its ſhape, being that of a gun-quoin, which it ſo much reſembles as you come from the eaſtward, that you can never be deceived. South from the Cape Point, which is the ſouthernmoſt extremity of the peninſula, and about a league from the ſhore, there lies a large rock at the water's edge, called the *Bellows*, upon which there is a breach, and two miles N. E. of this is another rock, under water, called the *Anvil*; there is a paſſage between theſe two rocks, with 10 fathoms in the ſhoaleſt part, but it is always much ſafer to paſs at a diſtance to the ſouthward of them, than to hazard yourſelf in a narrow channel very little frequented, where the ground is foul, and the current

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current rapid; about 1 ½ league N. E. eaſterly from the Bellows Rock, and E. by N. one league from the Cape Point, lies another ſunken rock, on which the *Colebrook* Eaſt Indiaman was loſt on the 24th of Auguſt, 1778, and which had not been known before.

The ſituation of this danger has been pretty well aſcertained by Mr. *Frederick Le Meſurier*, who, as ſoon as the ſhip was off the rock, took the following bearings, with as much exactneſs as the circumſtance would permit: *viz.* "The eaſternmoſt point of the Cape (not the pitch of it, but to the N. E. of the ſame) bore N. N. W. *by compaſs*, at leaſt 4 miles; and the Bellows Rock W. by N. or North, 4 or 5 miles; ground immediately after, 30 fathoms, which were the depth found before the Ship ſtruck. The *Royal Admiral*, paſſing about a mile to weſtward of the rock, between it and the ſhore, had not leſs than 28 fathoms; ſo that a ſhip may paſs on either ſide of it, though, continues Mr. *Le Meſurier*, I would not adviſe paſſing to the weſtward, except in caſe of abſolute neceſſity, or when the ſea is ſeen to break over it; which perhaps may be the caſe with a ſtrong ſouth-eaſterly wind. A Ship going into Falſe Bay with a N. W. wind may range the Bellows, at the diſtance of two miles, in 30 or 31 fathoms, and after that ſhould not haul up higher than E. S. E. or E. by S. by *compaſs*, till ſhe has run 5 or 6 miles on that Rhumb; ſhe may then ſteer to the E. N. E. and N. E. till the Cape bears W. N. W. when ſhe is clear of the Sunken Rock."

One mile E. by N. true bearing, off the Colebrook Rock, another rock is ſaid to lie, which Captain *Fauconberg*, of the *Steer Schanz*, affirms to have ſeen ſeveral times, although its exiſtence is ſtill denied by the generality of navigators.

Four leagues to northward of Cape Point, within Falſe Bay, and at the foot of the higheſt mountain on the coaſt, lies SIMON'S, or SEAMAN'S BAY, into which you may put, in that ſeaſon when Table Bay is unſafe, that is to ſay, in the months of May, June, July, and Auguſt, or when other circumſtances render it neceſſary. Though this place is not more than a large cove ſheltered only from the winds between the North and S. E. coming by the Weſt, yet thoſe of the other quarters, which come from the bottom of the bay, or from the mountains bordering the coaſt, never blow there ſo ſtrong as to endanger the ſhipping; ſo that it may be looked upon as a ſafe retreat, wherein you may lie ſheltered from all winds: beſides, at Simon's Bay, you meet with all the ſupplies which a veſſel may need after a long run, or in caſe of damage in her rigging. The Duch Eaſt India Company keep magazines there of marine ſtores; and with reſpect to victualling, and other neceſſaries, you procure them from the Cape Town, which is not above 6 or 7 leagues off, and they are eaſily brought to you in carts. You may wood and water there as readily as in any port of Europe; and even, in caſe of neceſſity, heave down by a hulk.

At a ſmall diſtance from the ſouth point of this bay, there lies a ſmall iſlot, or rock, in form of a barn, and from its appearance called *Noah's Ark*. N. N. eaſtward of this, about a mile off, you ſee a ſmall reef at the water's edge, called *Roman Rocks*. The common paſſage for veſſels lies between theſe two. At about two leagues E. N. E. of Roman Rocks, are the two Seal Iſlands ſurrounded with rocks above and under water, ſome of which run a long way to the ſouthward, and 3 ½ miles eaſtward of theſe you perceive breakers if the ſea runs high. Ships turning to windward in Falſe Bay, ſhould be cautious not to come too



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near theſe iſlands. They muſt likewiſe be careful of the *Trident's Rock*, which has only 12 feet on it at low water; it lies 4 miles Eaſt of the north point of Little Smith's Winkel Bay, and 8 ½ miles N. ¼ E. from the Colebrook Rock.

When you propoſe to put into Simon's Bay, as you ſail in from the weſtward, after you have had ſight of the Cape of Good Hope, and doubled the Bellows Rock, you ſhould then ſteer northward, coaſting along ſhore at a diſtance of 5 miles, which is far enough in the offing for keeping clear of the Anvil and Colebrook Rocks, as well as of the *Fauconberg*, in caſe it is not an imaginary rock; with this courſe you may always find ground proper for anchoring in caſe you meet with a calm, or any unforeſeen ſhifting of the wind.

In Simon's Bay, 13 or 14 ſails of ſhips may lie moored in ſafety. The new moon makes high water here at half paſt 3 P. M. The tide ſeldom riſes more than 3 feet, except after a ſtorm, or ſome other circumſtance. There is no current to be perceived all over the bay; the ſoundings are alſo regular, with a clear ſandy bottom

As you draw near Simon's Bay, you will eaſily diſtinguiſh its entrance by the Noah's Ark, which is a ſmooth and level inland, and at a diſtance reſembles a pontoon; but the moſt conſpicious mark, and which you diſcover the fartheſt off, are thoſe white ſand downs appearing like ſnow in the hollows between the mountains to the N. W. of Noah's Ark, as they are repreſented in the view of the land taken at K in the plan of Falſe Bay, by Captain *Joſeph Huddart*.

You may coaſt along near Noah's Ark, as it is ſteep to, and has 9 fathoms water cloſe to it, leaving the Roman Rocks to ſtarboard. The depth between Noah's Ark and the Roman Rocks is from 10 to 15, and 16 fathoms water; from this poſition you ſhould ſteer for the White Sand Downs quite to the anchorage.

In working into Simon's Bay you may ſail on either ſide of the Romans Rocks, there being a clear channel between the Rocks and Elſe Bay, and more convenient with the winds from the North-weſtward, as it is double in width.

The beſt ſtation you can lie in, in the Road, is to bring Noah's Ark and the Falſe Cape in one at E. S. E. from true North. The gate of the magazine, which is diſtinguiſhed from the other buildings by its ſize and roof, ſhould bear S. S. W. 5° Weſt, and you ſhould lie about 1 mile from ſhore, the Roman Rocks bearing S. E. ½ E. about 2 miles diſtant, and the ſouth or eaſt point of Simon's Bay, at the extremity of which many rocks are to be ſeen, bearing S. E. by S. ½ S. In this birth you have ſufficient room, in caſe of driving, from whatever quarter the winds may happen to come, as you are quite ſheltered, by the mountains, from thoſe which blow with the greateſt violence. If you ſhould be obliged to make a long ſtay there, you may anchor a little farther within, till Falſe Cape is entirely ſhut in by the eaſt point of the bay. For mooring into Simon's Bay, ſays a very experienced commander, bring

Noah's Ark E. S. E. ½ S. or S. E. ½ S. *per compaſs*.
Roman Rocks E. by N. northerly, or E. by S. *ditto*.
The Jetty S. S. W. ½ W. or S. W. ½ W. *ditto*.

You ought to moor your veſſel in this road S. E. and N. W. with this particular caution,

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tion, that from the month of May to September, your ſtouteſt ground-tackle ſhould lie to the N. W. as the winds from that quarter blow the oftenеſt, and with the moſt violence; on the contrary, from September to May you ought to lay to the S. E. becauſe the ſouth-eaſterly winds are then prevailing. However it is ſeldom that any veſſel goes thither in the latter ſeaſon, Table Bay being at that time much preferable.

Such veſſels as propoſe to put into Simon's Bay, in their return from the Indies, or China, after having got ſight of the coaſt of Africa, and doubled the Falſe Cape, ſhould ſteer either for the middle, or for the weſt ſide of Falſe Bay, to ſouthward of Seaman's Bay, to gain a convenient anchorage, they ought to keep off the eaſtern ſide, where the ſhore is ſurrounded with reefs.

As ſoon as they ſhall have made the entrance into Simon's Bay, whether by means of the White Sand-Downs, already mentioned, or by a ſight of Noah's Ark, they ſhould follow the directions already pointed out for ſailing to the beſt anchoring place.

If any unforeſeen circumſtance ſhould not permit ſuch veſſels as deſire to put into Simon's Bay, to make the land to eaſtward of the Falſe Cape, and they ſhould find themſelves in the latitude from 35 degrees and a half to 36 degrees; as ſoon as they have loſt the muddy bottom on the weſtern part of the bank of Lagullas, they ſhould make good their courſe N. by W. in order to get ſight of the Falſe Cape, or of the Cape of Good Hope.

When they intend to go out of Simon's Bay, they ſhould follow quite the reverſe of what has been laid down for entering it. If bound to the eaſtward, they ought to leave Simon's Bay as ſoon as the north-weſterly winds begin to blow: on the contrary, if you propoſe ſailing to the weſtward, you muſt wait in that caſe till the north-weſterly winds are on their decline, and get under ſail in the road as ſoon as thoſe winds ſhift from W. N. W. to Weſt; becauſe, as they moſt commonly veer from thence ſucceſſively to S. W. to South, and to S. E. they will prove fair for doubling the Cape of Good Hope, and lying up afterwards to N. W.

From the month of October to the month of April, the ſouth-eaſterly winds, which blow then moſt frequently, and with the greateſt violence, never continue longer than 5 or 6 days together, and are conſtantly ſucceeded by variable winds. It happens frequently too in Simon's Bay, as well as in Table Bay, in both ſeaſons, that theſe ſame winds, after blowing very hard for a whole day, and part of the night, fall towards morning, and are ſucceeded by a land-breeze from W. N. W. by the help of which, ſuch veſſels as have got under ſail at the very beginning of that breeze, may get out of Simon's Bay and put to ſea before the return of the ſouth-eaſterly wind. At the worſt, if they ſhould be taken in ſuch a poſition as not to be able to double the extreme point of the land, the beſt and moſt proper meaſure to be taken, in that caſe, will be to re-enter the bay.

Ships may, either in entering or going out, paſs to northward of the Roman Rocks, I mean between the reef and the coaſt, keeping clear of the rock, which is ſaid to be a little to the N. W. of the Roman Rocks, with 3 or 4 fathoms water on it. This paſſage in which you will find from 9 to 10 fathoms water, is twice as wide as that between thoſe rocks and Noah's Ark.

THE

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# THE CAPE AND BANK OF AGULHAS, OR LAGULLAS.*

## INSTRUCTIONS FOR SHIPS BOUND OUTWARDS OR HOMEWADRS.

CAPE LAGULLAS lies to the E. S. E. of the extreme point of the Cape of Good Hope, at the diſtance of about 29 leagues; it is the ſouthernmoſt land of Africa in latitude 34° 52′ South. The Cape itſelf, as well as the land for many miles to the weſtward of it, is of a moderate height, and can not be ſeen at more than ſix leagues from an Indiaman's poop; but about 9 miles W. N. W. from the Cape, the land riſes high enough to be ſeen 9 or 10 leagues off, chiefly its weſtern extremity, which, in ſome directions, reſembles a gunner's quoin; of courſe this high land is ſet for Cape Lagullas, by thoſe who paſs too far off to ſee the lower land, as moſt veſſels do. Thoſe who paſs it from the weſtward, with a ſcant wind to the ſouthward, and only arrive in ſight of the high land in the evening, ſhould be aware of this circumſtance.

All that part of Africa, of which Cape Lagullas becomes the ſouthernmoſt point, is ſurrounded by a bank of ſoundings, which, after the Cape's name, is called BANK OF LAGULLAS; this bank begins at the 33d degree South latitude, pretty near the coaſt, and continually increaſes its breadth to the South-weſtward, till it exceeds 40 leagues; then extending to the north-weſtward, it draws progreſſively nearer to the Cape of Good Hope, where it might be ſaid to terminate. The ſoundings on the bank, both as to depth and quality, are of the greateſt ſervice to navigators, who have remarked, in general, that to the weſtward of Cape Lagullas the bottom is *mud*, and to the eaſtward of it *ſand*. The ſmall ſhells, like the huſks of oatmeal, being alſo as peculiar to the Eaſt ſide, as the mud to the Weſt ſide of the bank. The quality of the bottom, on the South of 35° 15′ (in ſight of Cape Lagullas) is claſſed by ſome in three diviſions, *viz.* Mud, on the Weſt; fine ſand mixed, with various ſubſtances, in the Middle; and coarſe ſand, mixed with coral and ſtones, on the Eaſt. The ſoundings on the North of 35° 15′ are generally very inconcluſive, even with the help of the latitude: you always meet in thoſe parts, with a particular kind of ſea fowls called *Gannets*, which are about the ſize of a gooſe, quite white, with the extremity of the wings tipped with black, and whoſe flight is but ſhort, greatly reſembling that of a pigeon; you alſo commonly perceive ſeals ſwimming on the water; and theſe, with the change in the colour of the ſea, are ſure tokens that you are upon the bank.

The SETTING OF THE CURRENT, on and off the bank, has been for a long time a ſubject not fully underſtood, and many have aſſerted, that at different times this current did ſet in contrary directions, in the very ſame place. Major *Rennel* is the firſt who, in 1777, explained it in a manner equally ingenious and ſatisfactory. "It muſt be obſerved,"

* This Cape was called by its firſt diſcoverers, the Portugueſe, *Cabo das Agulhas* (pronounced Agullias), which means the "Cape of the Needles," becauſe, it is ſaid, the magnetic needle had no variation there, at that time. From the Portugueſe words our ſailors have compoſed the name of *Lagullas*, which ſome of them improve into that of *Lagullus*.

ſays

ſays that gentleman, " that the main ſtream of the current conforms to the direction of the edges of the bank, and not to the ſhore, as is, I believe, generally imagined; and that before it reaches the great bank, it takes a wide circuit round by the South to the N. N. W. between the point of Natal and Muſcle Bay. This winding courſe of the current, which produces errors of ſouthing and northing alternately in the reckoning, together with the incertitude of the ſhip's poſition, has undoubtedly occaſioned the above mentioned miſtake.

" It is univerſally allowed that the current runs ſtrongeſt during the winter months, and all the journals that I have ſeen confirm this opinion. It is, no doubt, influenced in ſome degree by the wind, and other cauſes, at all ſeaſons; and the width of the ſtream may poſſibly bear a proportion to its velocity. It appears to be from 40 to 50 leagues wide; the wideſt part being oppoſite to the river* Infanta; and the narroweſt on the S. W. ſide of the bank. On the Eaſt ſide of the bank, and about 50 leagues from Cape Lagullas, where the current again takes a ſouthwardly courſe, the outer verge of the ſtream runs into 39° South latitude, before it turns to the northward; after which it continues its progreſs, though ſlowly, along the Weſtern Coaſt of Africa, and probably beyond the Line. It is felt in latitude 26° in the track from the Cape to St. Helena.

" There appears to be a ſlow counter-current ſetting to South or S. E. about 40 leagues to the weſtward of the bank.

" There is certainly no conſiderable current, if any, a few leagues within the verge of the bank; a ſmall drain excepted, and that too near the land to be profited by, during the winter ſeaſon. This ſtream appears to follow the direction of the coaſt as far as Cape Lagullas, where the form of the ſhore throws it acroſs the bank in a S. S. W. and S. W. direction, until it joins the main ſtream. Ships are carried ſome miles to the ſouthward, while they are croſſing the ſtream, which however cannot be many miles in width.

" During the winter months," continues Mr. *Rennel*, " when the weſterly winds are ſo common, the paſſage round the Cape will be the moſt ſpeedily effected by keeping the ſhip in the ſtream of the current, and letting her drive round the bank. I am aware that moſt commanders prefer keeping on the bank, for the purpoſe of getting ſoundings, and in expectation of ſmoother water, and a ſtronger current than is to be met with farther out; with reſpect to the latter, which is undoubtedly the prime object, they are diſappointed, as they find a help of about 4 or 5 miles per day only, between Cape Talhado and Cape Lagullas. All the journals that I have examined, tend to eſtabliſh this fact, of which I had ocular proof during 5 days that I was on the bank. I am indebted to Captain *Waghorn*, late of the *Aſhburnham*, for the firſt hint I received concerning the courſe of the current round the bank. He went round it in the *Liverpool Frigate*, in 1764, and in 5 days had a help of about 160 miles between the meridians of Cape Talhado and Falſe Bay. The alteration of the current from S. W. to N. W. in latitude 37° was ſo ſudden, that it marked the exact time when the ſhip doubled the point of the bank."

* Called Groote River, or Great River, by the Dutch ſettlers.

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# INSTRUCTIONS

FOR SAILING ROUND THE

# CAPE OF GOOD HOPE.

TOWARDS

# INDIA AND CHINA.

AFTER you have made the Cape of Good Hope, or after you have got ſoundings on the Bank of Lagullas, if you keep between the parallels of 36 and 38 degrees of latitude, it will be high enough for your meeting with favourable winds. The weſterly winds are more certain in a very high latitude than in a lower; they blow very ſeldom in the former from the North and N. E. and during the months of June, July, and Auguſt, ſcarce continue about 12 or 14 hours; when the wind then at any time veers from E. S. E. to N. E. you muſt expect it in a few hours at N. W. In all other months weſterly winds are more frequent than in ſhore.

The winds from N. W. to W. S. W. are thoſe which occaſion the higheſt ſeas to the eaſtward, as well as to the weſtard of the Cape; though they do not blow with their greateſt force but during the months of June, July, and Auguſt, yet it ſometimes happens that in April or May you meet with very violent ſqualls from that quarter.

Theſe are generally foreſeen by black clouds, which darken the horizon from N. W. to Weſt, and as ſoon as you ſee theſe tokens you muſt prepare yourſelf, for they come on rapidly, and are ſometimes accompanied with whirlwinds. They begin to blow violently from W. N. W. to Weſt, then ſhifting with fury to the S. W. they get to South, when they abate, and it falls calm all on a ſudden; but the ſea, which they have agitated and ſwelled into mountains, is not ſo ſoon compoſed, and this is frequently of worſe conſequences than the gale itſelf.

About 150 leagues to the eaſtward of the Cape, theſe ſtorms are very frequent; the atmoſphere is almoſt always on fire with lightning and thunder, followed by deluges of rain, ſo that you ſcarce ever enjoy two fair days together. The weather is thus tempeſtuous while you are ſailing above 300 leagues farther; and ſeveral navigators have remarked that it continues quite to that meridian which paſſes through the eaſtern parts of Madagaſcar.

The courſe you are to take Eaſtward, after doubling the Cape, on the parallels above mentioned, ought to be always in proportion to the diſtance of the places to which you are bound, ſo that when you leave the weſterly winds, thoſe from the S. E. and E. S. E. which you will meet with afterwards, might be fair winds for the courſe you intend to ſteer.

Ships bound to the INNER PASSAGE ſteer in the parallel of 36° latitude, till they have made 12 degrees longitude Eaſt from Cape Lagullas; then they make ſome northing, but with caution. Hereabout the ſtrong weſterly and N. W. winds, that you had off the Cape, begin

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begin to moderate; they become variable, and are frequently S. S. W. and ſometimes S. E.

Ships which prefer the OUTWARD PASSAGE, ſteer in the parellels of latitude from 37° to 40° where they meet with ſtrong gales from W. S. W. to S. S. W. and N. W.

Ships bound to BOTANY BAY may continue ſteering to the eaſtward, in the above latitudes (and, if they chooſe, make the iſland of St. Paul, or Amſterdam) until they come near the coaſt of New Holland, when they muſt haul more ſoutherly, and gather into the latitude of the South Cape in New South Wales; and having rounded the above Cape, they ſteer to the northward for Botany Bay.

Obſervations of the variations of the Needle are equally uſeful in the ſeas to the eaſtward, as in thoſe to the weſtward of the Cape. The declinations from the North Pole of the World, ſeem to keep ſo exact a proportion to each other, that when you ſail from Weſt to Eaſt, or from Eaſt to Weſt, you may look upon them as the means of correcting your reckoning; for this reaſon no opportunity ſhould be neglected, nor any means left untried, for finding them with exactneſs; the obſervation muſt be always made with a good inſtrument, and when the motion of the ſhip is not too violent. As you ſail to the eaſtward it increaſes progreſſively as far as 27° Weſt; and, according to the beſt obſervations, the variation is found to be greater to the ſouthward than in the middle of the Inner Paſſage.

## ISLANDS AND DANGERS

### TO THE SOUTHWARD AND TO THE EASTWARD OF THE

## CAPE OF GOOD HOPE.

IN the parallel of 41 degrees South, about 21° 30′ Eaſt of London, the two little iſlands of DENIA and MARSEVEEN appear in the Charts at a little diſtance from each other. They are inſerted by Dr. *Halley* in his Variation chart; and *Van Keulen* ſays they have been ſeen by the Dutch Company's ſhips, but he gives no circumſtances.

Mr. *Dalrymple* doubts of their exiſtence, as iſlands of ice have been ſeen ſometimes, though rarely, by our ſhips in doubling the Cape; particularly in the latitude of 35° 55′ South by Captain *Pitt*, in the *Stanhope*, 1727. "I mention this inſtance," adds Mr. *Dalrymple*, "as I have ſeen a memorandum of an iſland diſcovered there, which, upon examining the journal, I found was only an iſland of ice." It ſhould ſeem, however, by the track of Meſſrs. *Marion* and *Crozet*, to New Zealand, in January, 1772, as it is laid down in the *Duke de Croy's* map, that the iſlands, Denia and Marſeveen, are not imaginary.

About 85 leagues S. by E. from Cape Lagullas, lies a SHOAL, diſcovered by the *French Brigantine*, TELEMAQUE, Captain *Géraud*, who ſailed from the Cape to Madras the 22d of January, 1786, and arrived at Madras the 17th of May following. Two accounts are given of this ſhoal, one by the Engliſh paſſengers on board the ſhip, and the other by the



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French Commander. Mr. *Petrie*, to whom we are indebted for both accounts, has found by working the French brig's log, that the true latitude of this ſhoal ought to be 38° 50′ inſtead of 38° 11′ in which it has been made to lie, and its longitude 22° 2′ Eaſt of London. "In my queſtions to the paſſengers," ſays Mr. *Petrie*, "I was particularly attentive to aſcertain poſitively the exiſtence of ſuch a ſhoal, beyond all probability of doubt; and I venture, from their anſwers, deſcriptions of what I ſaw, and explanations, to affirm that a very alarming and dangerous ſhoal lies off the bank of Agullas to the ſouthward, and ſome degrees to the eaſtward of the Cape of Good Hope, rendered more dangerous from its being in the common track of ſhips going the Outward Paſſage to India. It is not improbable that this ſhoal has proved fatal to ſome of thoſe veſſels which have periſhed in the voyage to India, and have never yet been heard of. I repeatedly aſked the paſſengers if they thought it was poſſible that they might have been deceived by the ſhade of a cloud, or by a particular appearance in the ſea; they agreed that, as far as they could truſt the evidence of their eye-ſight to a very near, conſpicuous and diſtinct object, they could not be deceived; they not only ſaw green moſs and graſs upon the rock, but in ſome places the bare rock perfectly diſtinct and plain, on both ſides the Veſſel; and one of the paſſengers ſaid, he was perfectly convinced that the depth of water, in ſome parts of the rock, was not more than 2 fathoms. After this danger they did not venture into a higher latitude than 35°, in conſequence of which they experienced a long continuance of bad weather, hard gales at Eaſt and S. E. and very high ſeas. They were 50 days in running down their eaſting, and from the 22d of January to the 17th of May, from the Cape of Good Hope to Madras."—N. B. "In February, 1744, the *Orford*, Captain *Edmund Smith*, in the paſſage from St. Helena to Bencoolen, ſailed through green water, and paſſed, in the night, what appeared to be a ſhoal, not far remote from the Telemaque's Shoal."

To the eaſtward of the Telemaque's Shoal, lies another called the *Slot Van Capelle*, or the Dutch Shoal, whoſe exiſtence is very well aſcertained; but, from the variety of reports, both Dutch and Engliſh, its longitude appears to be very little known, though it is generally placed between 38° and 39° Eaſt of London. The author of the *Neptune Oriental*, who has firſt mentioned this ſhoal, with ſome detail, in the firſt edition of his work, ſpeaks of it thus: "The Bank, which I have laid down to the ſouthward of Mozambique Channel, was diſcovered, in 1748, by a Dutch Eaſt India Ship, called *Sout Van Capel*, in her paſſage from the Cape to the Iſle of France, in 37° 20′ latitude South, and about 20° 20′ to the eaſtward of the Cape of Good Hope. This veſſel coaſted along it one whole day and remarks that it extends about 26 leagues from Eaſt to Weſt, and from 13 to 14 leagues North and South. I have paſſed both to northward and ſouthward of this ſhoal, but at ſo great a diſtance as not to be able to get any knowledge of it. I, as well as many other navigators, have remarked only that in this track the ſea toſſed very much, and that the waves were very ſhort and cockling."

This account is confirmed by Captain *Francis Fowler*, who, being at Prince's Iſland in 1748, was told by Captain *Jacob Bows*, commander of the Dutch ſhip the *Slot Van Capelle*, that in his outward bound paſſage, he ſaw breakers that ran very high; it blowing freſh, he brought

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brought to, ſounded, and had 60 fathoms water; he was then, by a good obſervation with Hadley's quadrant, in 38° 24′ latitude, and 20° 20′ Eaſt from the Cape.

At the diſtance of about 80 leagues to the north-weſtward of the Dutch ſhoal, and in 33° 44′, another ſhoal, or rock, is mentioned to have been ſeen, the 6th of October, 1765, by Captain *Baddiſon*, of the *Princeſs Auguſta*: this, however, might have been nothing elſe but the back of a whale, as were thoſe rocks ſeen in 1780, by the *Contractor* and the *Ponſborne*, in 38° 0′ latitude, and 31° 38′ Eaſt longitude; or the reflection of the moon, as was the ſand ſeen in 1780, by the *Glatton*, in 35° 58′ latitude, and 43° 13′ longitude Eaſt of London. See Mr. *Dalrymple's* Memoir—page 14. and ſeq.

# OUTWARD PASSAGE.

## DIRECTIONS

## For the Paſſage to the ISLES of St. PAUL and AMSTERDAM.

SHIPS going to India, or China, early in the ſeaſon, and which are to paſs the meridian of the Cape of Good Hope in the months of March or April, muſt not approach the Cape, for at this time of the year the S. E. wind is prevailing there, as well as along the coaſt to the eaſtward of it, and frequently blows pretty ſtrong. They ought to keep to the ſouthward, in latitude 39° or 40°, where, as it has already been obſerved, they are ſure of finding ſteady gales from W. S. W.—S. W. and N. W. by the help of which they will quickly run down their eaſting. In this paſſage, before they come to the meridian of the Cape, they may happen to ſee the Iſles of Triſtan da Cunha, or Gough's Iſland. They muſt keep conſtantly in the high latitude, above-ſaid, till they approach the Iſles of St. Paul and Amſterdam.

Ships outward bound for this paſſage, which are in ſoundings off Cape Lagullas, in May, June, July, or Auguſt, may come into 37° 30′ latitude, which is high enough to run down their eaſting. In this latitude they will have alſo ſtrong gales from W. S. W. to S. S. W. and N. W. (as we have already ſaid) and in ſailing to the eaſtward, they will find but very little alteration in the variation for ſeveral degrees.

If you intend to make the Iſland of St. Paul, you muſt keep in the parallel of 37° 20′ or 37° 30′ South; it will carry you clear to the northward, and fairly in ſight of it; your reckoning may be corrected by the variation found off this iſland, or that of Amſterdam, without ſeeing either of them, allowing the variation to be 19° or 20° Weſt; at or near theſe iſlands you may reckon yourſelf, when in their latitude with this variation, to be alſo in their meridian; and from thence you can proceed for the Straits you intend to paſs, either to the eaſtward or to the weſtward of Java.



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# THE ISLES OF ST. PAUL AND OF AMSTERDAM.

THE ISLE of St. PAUL, called *Amſterdam*, in 1696, by its diſcoverer, the Dutch Captain *Vlamming*, is the northernmoſt and ſmalleſt of the two; it can be ſeen 12 leagues off in clear weather, and is deſcribed thus by Mr. *John Wane*, Midſhipman on board the *Morſe Indiaman*, in 1770.

" This Iſland, at the diſtance of 3 or 4 miles, appears to be ſmall, and of a moderate height, but, on a nearer approach, the fog clearing away, we obſerved it to be very high land, of a pyramidical ſhape, and about 12 miles in circumference. Ships that go the outward paſſage to India, moſtly make St. Paul, but ſeldom ſee the height of it, on account of the weather being generally hazy. The *Morſe* ſent her boat on ſhore to inſpect into the iſland, in which I went, and, to the beſt of my remembrance, the particulars are as follows: We ſailed round the iſland, but found no place to land, on account of the rocks, which are almoſt perpendicular, and rather inclining over the ſea, and at a great height above the ſurface of the water. There are a great number of theſe extending round it, for the ſpace of a $\frac{1}{4}$ of a mile, and about 2 feet water on them. You have ſoundings off the iſland, but very uneven, except on the north part, where they are more regular, and free from rocks. Ships may anchor there in 7 fathoms, ſandy ground, diſtant off the rocks 1 mile; but not with ſafety, as there is a large ſwell, and generally blowing hard. On the ſouth part of the iſland we obſerved a ſhip's keel and a top-maſt, both very large; we could not go to examine it, but we imagined it to be the wreck of a Dutch ſhip. We came to a grapnel, to leeward of the iſland, with a determination to land, if poſſible, and, after ſeveral attempts, we ſucceeded, but with great difficulty and danger. The method of our landing was thus: one of the crew ſwam aſhore, and after many efforts, being beat off ſeveral times by ſeas, he aſcended the rocks; this man carried the end of a deep ſea-line with him, the other end being made faſt to a rope, which he hauled aſhore; this ſecured our landing, which we could not otherwiſe have effected. We took a general view of the place, and found it to be a light ſandy ſoil, which produces high graſs and ſhrubs, with which the whole iſland is covered. About $\frac{1}{2}$ a mile inland, there is a ſmall drain of water iſſuing out of a rock, which, by eſtimation, might fill a butt in 12 hours, and this was the only ſpring of water we found; we ſaw a ſmall quadruped, of the ſize and ſhape of a goat, ſpotted, and without horns; but we could not diſcover the leaſt appearance of any of the human ſpecies being there. The coaſt of the iſland abounds with ſeals of an enormous ſize, and with rock-cod, which we caught in great plenty. We carried on ſhore ſheep, goats, and fowls, male and female of each, and left them to propagate."

"Admiral *D'Entecaſteaux* made the Iſle of St. Paul the 29th of March, 1792, and the writer of his voyage gives the following account of this ſmall iſland, which does not agree with that of Mr. *Wane*. " The Iſland of St. Paul," ſays that gentleman, " appeared, in the diſtance, covered with thick clouds, above which roſe the ſummits of the mountains. We were ſufficiently near it, about four o'clock, to diſtinguiſh perfectly that theſe clouds were formed on the iſland, whence iſſued a ſmoke which almoſt entirely covered it, eſpe-



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cially towards the North; flames were ſeen in different points, and it was ſoon diſcovered that the foreſts were in a blaze: the traces of the fire, and the ſmoke, which appeared ſucceſſively in different places, exhibited the progreſs of the conflagration. We ſhaped our courſe ſo as to paſs as near as poſſible to windward of the iſland: the ſame ſpecies of birds that we had ſeen a few hours before we got ſight of it, were flying in great numbers round the rocks, which ſerved them as a retreat. A great many ſeals were ſwimming in the midſt of the large heaps of ſea-weeds detached from the coaſt, the ſouth ſide of which we ranged along, at the diſtance of above $\frac{1}{2}$ a mile. This ſteep coaſt is very ſafe. The ſea followed its direction, and would have appriſed us of the danger of approaching it, had it been ſkirted by ſhoals. Rocks inclined about 50° from North to South, and which I took to be compoſed of ſtrata of free-ſtone, formed the mountains to the S. W. which exhibited great declivities as far as the ſea-ſhore. Farther on to the South, were ſeen horizontal ſtrata of the ſame ſpecies of ſtone: thence iſſued a ſmall rivulet, the waters of which fell into the ſea, forming a caſcade. Perpendicular ſurfaces of rocks exhibited, on a large ſcale, thoſe ſtrange forms known under the denomination of *Luſi*. We obſerved a thin ſmoke iſſue in puffs from a ſmall ſubterraneous aperture, at a little diſtance from the ſhore.

We were ignorant whether the foreſts had been ſet in flames by the ſubterraneous fire, or by the hand of man. I learnt at the Iſle of France, at my return from the South Sea, that an American ſhip had carried to the Iſlands of St. Paul and Amſterdam, ſome men commiſſioned to extract oil from the ſeals, which are there very numerous. Notwithſtanding our attention to diſcover if our aſſiſtance would not be required, we ſaw no ſignal to appriſe us that this iſland was inhabited. Beſides, it would have been impoſſible to have put in there, for we could ſeek a ſhelter only to leeward of this land, where the thick ſmoke would have put us in danger of being ſuffocated. The ſmell of this ſmoke indicated nothing but vegetables on fire.

" The mountains ſlope towards the S. E. ſo that, in favourable weather, it would be eaſy to land on that ſide. We here ſaw ſome little rivulets, which, after a meandering courſe, mix their waters with thoſe of the ſea.

" We were only at a ſmall diſtance from the iſland when the night came on. This land then appeared all in a blaze, and the ſmoke, which imbibed all its brightneſs, gave to the ſky a copper-coloured tint, as at the approach of a ſtorm.

" The Iſland of St. Paul, which is about 4 or 5 leagues in circumference, is ſituated in the latitude of 37° 56′ South, and longitude of 75° 2′ Eaſt of Paris, or 77° 27′ Eaſt of London.

" The variation of the compaſs there was 17° 30′ Weſt."

The Isle of Amsterdam (which is the *St. Paul*, or *St. Paulo* of the Dutch) is about 7 or 8 leagues diſtant to the ſouthward of Engliſh St. Paul; it lies N. W. and S. E. being 8 or 10 miles in length, and 4 or 5 in breadth; it is pretty high land; the ſouth-weſt point falls gradually from the ſummit of the iſland until it comes to about 20 feet above the water, and then chops down at once. When they come to open the eaſt part of the iſland toward the North, it makes in two bold headlands, betwixt which ſeems to be a deep valley, and

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to the eaſtward of the two headlands, at a ſmall diſtance in the ſea, ſtands a very remarkable rock, about 80 or 90 feet high, and in the ſhape of a nine-pin, round about which are a parcel of low rocks. The north-eaſt point makes in a low ſlip of land, falling gradually quite down to the water's edge, not unlike the Bill of Portland. If you avoid the weſt part of the iſland you will find all the reſt ſafe, and you may go cloſe to it without fear; on the north ſide there is no ground, it is all rocky with a heavy ſwell rolling in from the ſea; on that ſide you ſee a fall of water.

The Dutch, who have landed on this iſland at different times, found it ſo covered with wood, ruſhes, and thick canes, entangled together, that one could not, in a day, go 4 miles, being obliged to creep under the ſhrubs, and clamber over the trees, which ſtand cloſe together, ſome of them being as thick as a man's waiſt. The ſoil is, in general, a fenny land, about 3 feet thick, and under it ſtones like burnt pumice; it is alſo very looſe, and the trees not getting ſufficient root in the ground, do not grow high. The Dutch ſaw there neither man nor beaſt, but only ſome birds like ſparrows; one of their people indeed ſaw, as he thought, a quadruped like a weaſel, and another like a fox. They found ſome vegetables, as wild celery, good to eat; climbing up a hill, good freſh water was diſcovered, but they were obliged to carry it down in ſmall caſks from the top of that hill. They could ſee over the whole iſland, which appeared, all round, very ſteep, and every where clear, but having no place to anchor, or come at, except where they lay, where there is as good lying as at the Cape, without any ſwell. This anchorage was at a ſcant muſket ſhot from the ſhore, the iſland bearing Weſt.

They found alſo a lagoon, where they caught many ſmall fiſh; the adjoining ground was very hot, and out of it the water iſſued boiling hot; they made holes for this boiling water, and dreſſed and cooked their fiſh in it; they diſcovered ſeveral of theſe hot ſprings in the iſland, which, in ſome places, were ſo ſituated, that the fiſh caught in the cold water, and faſtened to the hook, might be inſtantly thrown into the hot ſpring and boiled*. All about the iſland they found the ſea ſo full of ſeals and ſea lions, ſome of them at leaſt 18 feet long, that they were obliged to kill them to get a paſſage through, when they ſteered for the ſhore; there was alſo an aſtoniſhing number of fiſh, ſome like large ſtone breams; in four hours time they caught with the hook 436 large fiſh, like ſmall cod, beſides many lobſters.

Obſerve, that before you make Amſterdam, you will ſee ſeveral albatroſſes, cape-hens, ſilver-birds, and ſeals about the ſhip; and you generally meet with a good deal of rock-weed when you have made the iſland.

The exactneſs of the deſcription made by the Dutch of this iſland, has been confirmed by Mr. *John Henry Cox*, who was there in 1789. This gentleman anchored on the ſouth ſide of the iſland, in 20 fathoms, black ſand, like wet gun-powder, in the ſame ſpot that *Vlamming* the Dutchman did in 1697. "On the 31ſt of May," ſays his journal, "we hoiſted out our boats, and rowed towards the ſhore (abreaſt the ſhip) which here forms a ſort of cauſeway of large clean pebbles, that has the appearance of being raiſed by art; in the mid-

* This iſland is evidently volcanic, as are almoſt all thoſe ſmall and high iſlands ſcattered in the Ocean.

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de of this cauſeway, we ſaw an opening, in which a great many ſeals were playing, about a piſtol-ſhot wide, into a baſon or lake; we rowed for this entrance, and found a ſtrong tide, at leaſt 2½ knots, running out, and with ſome difficulty, it being nearly ¾ ebb, got the cutter over the bar which is formed of looſe pebbles; we were then in deep water, and ſmooth as a mill-pond, though the ſea ran very high without; we landed on the north ſide of the entrance, where we found ſeals innumerable; after killing a great number, we went in ſearch of freſh water, and for that purpoſe began to aſcend the only acceſſible part of the hill; up a conſiderable way the ſeals had formed a good path, but beyond this we found the aſcent obſtructed by large tufts of coarſe graſs, which, in *Klamming*'s time, were 8 or 9 feet aſunder, but were now cloſe together, ſo that we were obliged to return, though it muſt have been on theſe heights that he found water: indeed, had we reached the top, and found water, though it might have ſupplied preſent expenditure, and in that light would be valuable to a veſſel that made any ſtay here, it would be endleſs work to attempt watering a ſhip from hence.

" Sent the cutter aſhore ſealing; rowed round the baſon, which is between 2 and 3 miles in circuit; found 29 fathoms in the middle, and 27 and 28 within 150 yards of the ſhore, cloſe to, 7 and 8 fathoms. The land round the baſon is table land, riſing in ſome places almoſt perpendicularly from the border of the baſon, and covered with graſs, which gives it a pleaſant appearance. As we rowed round, we ſaw ſmoke riſing amongſt the ſtones, in ſeveral places cloſe to the baſon; we landed and found the water ſo hot, that we could not bear our hands in it. I had a pocket thermometer with me, which, in the open air, ſtood at 62°, but when put into the water, at 190°, and then, in about a minute, fell to 185°. Our people, who were aſhore ſealing, conſtantly boiled their dinner of fiſh in ſome of thoſe ſprings, which are in all parts cloſe to the baſon.

" June the 5th, in the afternoon, blowing very hard from N. E. with a great ſea, determined to put to ſea, and run down under the lee of the iſland; at 5 got a ſpring on our cable to caſt, cut the cable cloſe to the ſplice, and went to ſea. We lay in a very good birth to clear the iſland on either ſide, but it would be ſafer for a large ſhip to lie about two cables length farther to the eaſtward, and upon appearance of blowing weather from the eaſtward, to go to ſea immediately, and run to leeward of the iſland, where ſhe would find ſmooth water; and as the eaſterly wind is never of long continuance, ſhe would be ſure of ſoon regaining the anchorage.

" We killed, during our ſtay here, 1200 ſeals, and, could we have ſtaid, might have got as many thouſands. We had conſtantly many whales playing about the ſhip, ſo that it was ſometimes difficult to ſteer clear of them in rowing aſhore; ſeveral of our people, who had been in Greenland, ſaid they were the ſpermaceti whale.

" The fiſh we caught on board were chiefly a ſort of bream, ſtriped like mackarel, and of theſe we caught ſo many the firſt day, that, beſides ſalting and pickling ſeveral barrels, we threw ſome hundreds over-board; we caught alſo ſome mud-cod and barracoutas. It may be proper to obſerve, that the inſtant the fiſh are caught, they ſhould be gutted and ſalted; in particular not expoſed to rain, which prevents their taking the ſalt, as we found, to our coſt;

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coſt; for ſeveral barrels full, which had lain in the rain before they were ſalted and packed, turned out, on inſpection, good for nothing.

" We found the tide to riſe and fall about 2 feet 8 inches, or three feet. The flood I think comes from the northward, and it is high water on the full and change, about 10 h. 45 m. or 11 o'clock." The baſon before mentioned, forming a pretty regular ellipſis, which is the crater of a volcano, has been ſince ſurveyed by one of the officers of the *Hindoſtan*, then at anchor 1¼ mile Eaſt of its entrance. " The circumference round the water's edge, according to this meaſurement, is 2980 yards, or nearly 1 mile and ¾. By taking the perpendicular height of the ſurrounding ſides at 700 feet, and the angle of their inclination at 65°, the circumference of the crater will be 2 miles and 160 yards. The average height of the ſides being taken at 700 feet, the depth of water at 29 fathoms, or 174 feet, the whole depth of the crater is 874 feet."

" The entrance into the Baſon, about 25 yards wide, is formed by two narrow cauſeways, or ridges of rocks, that run out from two peaks, which terminate the ſides of the crater, one on each ſide; that on the right is 743 feet high; at its foot, on the cauſeway, there is a hot ſpring, where the thermometer ſtood at 212°, at which were boiled ſome fiſh; and this is the general ſtandard of heat at all the ſprings round the water's edge."

The variation at Amſterdam has been obſerved to be weſterly, as follows, *viz.* 17° 35′ in 1747, 18° 45′ in 1764, 20° in 1774, and by Mr. *Cox* 19° 45′ in 1789.

The longitude of Amſterdam is about 77° 22′ Eaſt of London, according to a very good obſervation made by Captain *Bligh*, of the *Bounty*, in her paſſage to Otaheite; and its latitude 38° 42′ South.

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# DIRECTIONS

## FOR THE PASSAGE FROM THE PARALLEL OF ST. PAUL AND AMSTERDAM,

## OR FROM THOSE ISLANDS TO JAVA HEAD;

## AND FOR THE PASSAGE OF THE STRAITS EASTWARD OF JAVA TO CHINA.

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## ACCOUNT OF THE PREVAILING WINDS, &c.

IF you are bound to India, or to the Straits of Sunda, from the Cape of Good Hope, in the latter part of the ſeaſon, as in September, or at any time between September and April, it is not abſolutely neceſſary you ſhould have a ſight of either St. Paul or Amſterdam, provided you aſcertain your longitude by means of the variation found. Being in the parallel of 37°, or 37° 30′ South, about 61° 30′ Eaſt of the Cape, which is the meridian aſſigned to St. Paul, you ſteer in the ſame latitude 8 or 10 degrees eaſtward, before you edge away to the

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the northward, though ſo much eaſting is not required for ſhips which are bound to India they may, in the longitude above ſaid, run down their eaſting and northing together, and will ſee their variation decreaſing very faſt as they advance to the northward.

The parallel between 37° and 38° is the beſt to keep in, the winds being there, in general, weſterly, with freſh gales; and before you have made the longitude above preſcribed, that is about 88° or 89° Eaſt of London, if a change of theſe winds ſhould oppoſe your courſe to the eaſtward, it will be proper not to paſs the latitude of 35° South, on account of the winds you ſhould find there from North to Eaſt. Several ſhips, for want of this precaution, have loſt a great deal of time in beating to windward, and at laſt have been obliged to run to the ſouthward as far as 40° latitude South, to regain the weſterly winds.

In the Indian Ocean, between the Cape of Good Hope, and the land of Endracht, in New Holland, to the ſouthward of the 25th degree of ſouth latitude, the winds blow from the weſtward moſt part of the year; except in January, February, and March, near the Cape, or about 200 leagues from the eaſt and weſt coaſts, where they come oftner from the eaſtward than from the weſtward.

Between the 35th and 25th parallels of ſouth latitude, you meet with variable winds; but beyond theſe parallels, as far as the 12th South, they come from the S. E. without any conſiderable interruption. They are uſually called *General Winds*, becauſe they blow thus, not only in the Indian Ocean, but alſo in the other ſouthern ſeas; only in thoſe ſeas their power extends as far as the Equator, whereas in the Indian Ocean they ſeem confined between the parallels of 28° and 12° ſouth latitude.

From the 12th degree of latitude South to the Equator, the winds divide the year into two ſeaſons, or *Monſoons*, blowing about 6 months one way, and 6 the other. Although this difference is the ſame throughout the Indian ſeas, yet the winds have a contrary direction at the ſame time; and while the eaſtern monſoon is prevailing in the northern Hemiſphere, the weſtern blows in the ſouthern. The eaſtern monſoon begins to the ſouthward of the Equinoctial in April, and continues until November; the weſtern ſucceeds, and continues until April; the months of April and November, in which the monſoons break up, are ſubject to variable winds, but they do not change ſuddenly.

Ships going to India in the months of November, December, January, February, and frequently in March, will meet with freſh gales of wind from S. W. to N. W. from the 12° latitude South to the Line, and ſqually weather with much rain; in this track their eaſting may be run down very faſt, but they ſhould take care to do ſo before they croſs the Line, for as ſoon as they get into north latitude, they loſe the freſh weſterly winds; and in latitude 1° North they will meet the N. E. monſoon, which blows conſtantly in the Indian ſeas, from October to April, between N. E. by N. and E. N. E.

In this ſeaſon a ſhip muſt endeavour to keep as far to the eaſtward as Acheen Head, let her be bound to what part of India ſhe pleaſes; if to Bengal let her keep to the Eaſt of the Nicobar and Andaman Iſlands, and along the Aracan ſhore until he can ſtretch over to Ballaſore Roads; and if bound to Madras, ſhe may ſail acroſs the bay from Acheen Head, and fetch her port; taking care to fall well to the northward of it, on account of the winds,



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which are for the moſt part northerly, and of the current which runs ſtrong to the ſouthward.

If you are bound to the coaſt of Malabar, being off Acheen Head, you muſt ſteer for Ceylon, and take care to fall in with that iſland about the Friar's Hood, or the Great Baſſas; then you are to keep the coaſt cloſe aboard, and come round by Ponta de Gall, obſerving to keep in ſoundings, ſo that in calms, or contrary winds, you ſhould be able to anchor, by which means you will prevent your being driven off by the ſtrong S. W. currents.

When you have made about 88 or 89 degrees longitude Eaſt of London, being bound to the weſt ſide of Java, you edge away gradually to the northward, in ſuch a manner as to be able to paſs the Tropic of Capricorn in 101, or 102 degrees Eaſt of London. Being under the Tropic in the latter longitude, you will find yourſelf about 50 leagues to the W. S. W. of the Tryal Rocks, and 3 degrees farther North, that is in 20° 30′, you will be in their parallel; prudence requires that you ſhould paſs the latitude of thoſe ſhoals in the day time, becauſe you may fall on them in the night, when you reckon yourſelf at a great diſtance in the offing.

In this run you might ſee likewiſe, if it was in exiſtence, the iſland called Cloate's Iſland, by the French, of which we ſhall ſpeak hereafter, as well as of the Coco Iſlands, and of Chriſtmas Iſle to the eaſtward of theſe.

Having paſſed the parallel of the Tryal Rocks, you muſt continue your courſe within ſight of Java: in latitude 10° South, and longitude made from St. Paul 33° Eaſt, you have 2° 30′ weſt variation; with this you will make the land in latitude 8° 16′ South, 20 or 25 leagues to the eaſtward of Java Head. All ſhips bound to the Straits of Sunda, between the months of March and September, ſhould take care to fall in with the land to the eaſtward of that headland, and, for want of proper attention to the variation, ſeveral which have gone to the weſtward of it, have been obliged to go through the Straits of Malacca. But we muſt inſert here the caſe of Captain *George Richardſon*, of the ſhip *Pigot*, December 1771, and the caution given by that gentleman.

" In running down from St. Paul's towards Java Head, from the month of September to the month of March, you ought not to fall in to the eaſtward of Java Head, becauſe, in thoſe months, you will find it difficult to get to the weſtward, for on the South Coaſt of Java the winds blow then conſtantly from the N. W. to Weſt, with a ſtrong current ſetting to the eaſtward. Our Company's inſtructions particularly deſire you not to fall in to the leeward, that is, to the weſtward, without ſpecifying the different times of the year; this led me into an error of falling 5 degrees to the eaſtward of Java Head, by which I was ſix weeks after making the land until I got into the Straits, being obliged to ſtand to the ſouthward into the trade-wind, to run down my weſting. In this courſe I made Chriſtmas Iſland, at which I was deſirous of anchoring, and where I convinced myſelf there was no anchorage; I then ſtood away to the northward, but was again hurried by the currents 20 leagues to the eaſtward of Java, which obliged me a ſecond time to ſtand to the ſouthward; and this time I ran by my reckoning, 45 leagues to the weſtward of Java Head

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Head before I hauled to the northward; and was 23 leagues to the weſtward, by my reckoning, when I made Java Head. This was in the month of December, ſo that all ſhips bound to Batavia, at this ſeaſon of the year, ought to endeavour to make the iſland Engano, as the Dutch ſhips always do, who are generally late in the ſeaſon.

If bound to Bencoolen, you ought, at this ſeaſon of the year, to make the Poggy, or Naſſau Iſlands; but in the S. E. Monſoon you ſhould fall in to the eaſtward of Java Head, and then you will have a commanding wind to Bencoolen."

A N. E. ½ E. or N. E. by N. courſe from the parallel of the Tryal Rocks will enable you to make the land about 50 leagues to the eaſtward of the Straits of Sunda, ſuch a diſtance being ſufficient to prevent any miſtake to the weſtward. In following theſe directions you generally find the error on the other ſide, and fall in with the land farther to the eaſtward than your reckoning, as it is confirmed by ſeveral journals; but obſerve, at the ſame time, that it might become dangerous to run too far to the eaſtward, on account of the difficulty you have to get out of the bays formed by the coaſts of New Holland and the iſlands to the Eaſt of Java, wherein you often meet with calms and rapid currents. After all the neceſſary precautions, if you ſhould find yourſelf in 7° 30′ South, and not ſee the land, haul upon the wind to get to the eaſtward until within ſight of it. When you approach the ſouth part of the coaſt of Java, you will ſee drifts of bamboos, and a great number of birds like boobies, but there is no judging with certainty, for want of good marks, of your diſtance from the Straits of Sunda; all we can ſay is, that the land near the ſhore is generally woody, with ſeveral bays and rocks bordering the coaſt, which ſeem to render the landing dangerous; nor is the bottom proper for anchoring, except very near the ſhore. The inland part is covered with high mountains, eſpecially the eaſt ſide, where they are very craggy.

When you are about 4 or 5 leagues off this coaſt, you are to ſail along it; it lies in general about E. by S. and W. by N. as far as *Winerow Point*, or *Wine Cup Point*, where it ſeems to terminate, when you come from the eaſtward; the point which is low and covered with trees, is eaſily diſtinguiſhed by theſe, as well as by the double land near the ſhore that lowers towards it; its extremity is marked by a little ſandy iſland cloſe to the waters edge, and in this part the coaſt is lined with breakers near one mile off.

From Winerow Point the coaſt lies N. by E. in a ſpace of 3 leagues, and after forming a bay to the eaſtward, it trenches away to W. by N. as far as the entrance of the Straits of Sunda. In this latter part, about 2 leagues off ſhore, lies a ſmall low iſland covered with trees, called, by the Dutch, *Trouwers Iſland*; and 3½ leagues W. by S. from this you meet with *Clap's Iſland*, called alſo Breakers Iſland, which is low and woody like the former; thereabout you may anchor in 25 or 30 fathoms.

Being paſt Winerow Point ſteer W. N. W. towards Clap's Iſland, from which you bear thus about 20 leagues; as you near it, you may perceive to the north-weſtward JAVA HEAD (the weſternmoſt point of the Iſle of Java, and the ſouthernmoſt of the Straits of Sunda), on which there is a hill of a moderate height, whoſe weſt end lowers more ſuddenly than the other. To the eaſtward of this hill, there is another very much like it in ſhape and height; between the two the land is low and covered with trees; if you come from ſeaward, and are too far



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to perceive the latter, the weſternmoſt hill appears like an iſland; and when you raiſe the eaſternmoſt, the ſpace between them ſeems to form the entrance of the Straits; then the trees appear, and the low land which unites them.

It is about 7 leagues N. W. by W. from Clap's iſland to Java Head, which ſeems to terminate very bluff, it being on a great rock, ſeparated from the foot of the hill, with which it appears confounded. Coming from the ſouthward there are ſome other little rocks above water, leſs than a mile off ſhore; and to the ſouth-eaſtward thereof a reef upon which the ſea breaks.

Ships which are bound to China through any of the Straits that lie to the eaſtward of Java, ought to make the iſlands of St. Paul or Amſterdam.

From theſe iſlands, or from 20° weſt variation, in caſe you have not ſeen them, a ſhip may run 17° or 18° to the eaſtward, before ſhe lowers her latitude under 35° South; and then being careful not to go under the latitude of 26° South, until ſhe reduces the variation to 7° Weſt, ſhe will make the coaſt between 22° 30′ and 25° South, with 5° 20′ weſt variation, having conſtantly the ſtricteſt regard to the variation. In this run you muſt take care of the *Daniſh Rock*.

Off the coaſt of New Holland, between the 28th and 29th degrees of latitude, lies a very dangerous ſhoal, called Houtman's Abrolhos; to avoid which this land is not to be made to the ſouthward of 26° or 26° 30′ ſouth latitude; when you make it in 25 degrees, you fall in with DIRK HARTOG'S ROAD, on the outſide of the bay, which was called, by *Dampier*, SHARKS BAY. There the coaſt is clean, with good ſoundings in the offing; this road is alſo ſpacious, good, and eaſy of acceſs; but nothing is to be got there, the country being very ſandy and barren, without water and inhabitants. When you attempt to make the land about 22° you muſt be very careful of *Cloates* iſland, which lies not very far from the coaſt; you will obſerve alſo, that between the 22° and 23° of latitude, the north part of the coaſt is high land, and the ſouth part low land with a beach; the ſoundings are 130 fathoms, mud, 14 leagues off.

In approaching the coaſt of New Holland, you have many tokens which never fail, as great quantities of ſkuttle-bones, weeds, and drifts; and nearer the coaſts grampuſes playing like ſeals, with an amazing number of tropic-birds; but ſkuttle-fiſh and weeds are generally the firſt marks.

A ſhip bound to one of the Straits, eaſtward of Java, muſt neceſſarily make the coaſt of New Holland; and taking her departure from it in latitude 20° South, or thereabout, ſhe is to ſteer north-eaſtward: if you intend to go through the *Straits of Bally*, your principal care muſt be to ſecure the land-fall from New Holland, for ſhould you fall but 10 leagues to leeward, it would be very difficult, not to ſay impracticable, to beat up, becauſe the current and winds ſet hereabouts as the ſhore lies. The entrance of theſe Straits is eaſily known by the draught, as well as by the views of the hills.

If you are bound to the Straits of *Lombock*, or thoſe of *Alaſs*, or of *Sapy*, you are to make, with due caution, the coaſt of Cumbava, a land very remarkable by its height and ruggedneſs. The iſle of Lombock is diſtinguiſhed likewiſe by a very high peak, which is better

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deſcried through the Straits of Alaſs, being nearer that ſide; betwixt theſe two Straits, the ſhore for the moſt part is a ſandy beach, lined with ſeveral large ſtraggling rocks, and one large inlet or river.

Mr. *George Robertſon*, treating of this paſſage in his *Memoir* of a *Chart* of the *China Sea*, makes the following pertinent remark.—P. 85.

"I cannot help," ſays that able navigator, "taking notice of errors and inconſiſtencies ſet forth in the *India Directory*, p. 18, of *Nichelſon's* Obſervations." He remarks, that ſhips bound to theſe Straits, ſhould make their departure from New Holland in latitude 19° South, or thereabouts.

"In anſwer to this, it appears the weſt coaſt of New Holland does not extend farther North than 21° 6′ South, an error of 46 miles in point of latitude.

"In the next place he adviſes making the coaſt of Cumbava *to the eaſtward of the Straits of Alaſs*, without a ſingle caution reſpecting the eaſterly or weſterly Monſoon, both of which in this place ought to be very particularly attended to; as the falling to the leeward of your intended track will inevitably fruſtrate your intention, it being hardly ever poſſible to regain your ſituation to windward, although, perhaps, there is only a few miles wanting. I would, therefore, adviſe ſhips, that intend going through theſe Straits, after taking their departure from New Holland, always to allow from 10 or 15 leagues to the windward of their intended deſtination."

## DANGERS TO THE EASTWARD AND NORTH-EASTWARD OF THE ISLES OF ST. PAUL AND AMSTERDAM.—

## CLOATES ISLAND,—THE DANISH ROCK,—HOUTMAN'S ABROLLOS,—THE TRYAL ROCKS,—COCO ISLANDS,—OR KEELING ISLANDS, AND CHRISTMAS ISLAND.

CLOATES ISLAND was diſcovered in 1719, by Captain *Naſh*, of the imperial ſhip, *The Houſe of Auſtria*, bound from Oſtend to China, who gave it that name in honour of a Flemiſh Nobleman, one of his owners. Captain *Naſh* ſaw it firſt at 3 A. M. the weather being very clear, on which he immediately brought to and ſounded, but had no ground at 100 fathoms, though not above 4 miles, and, according to ſome accounts, not above 2 miles off ſhore*. The day before, and ſeveral days after, they obſerved an incredible quantity of ſea-weeds (like thoſe from the Gulf of Florida) and ſmall birds like lapwings, both in ſize and in flight. Cloates Iſland has been ſeen likewiſe by the *Haeſlingfield*, in 1743; ſhe ſaw it at day-light, bearing from S. E. ½ S. to E. by S. diſtant about 6 leagues. According to the deſcription of both ſhips, the iſland is about 8 or 10 leagues in length,

* The iſland now called by the name of *Cloates*, muſt have been known long before Captain *Naſh* ſaw it. The Chart of *Seller*, publiſhed in the beginning of this century, lays down an anonymous iſland to the S. W. of the Tryal Rocks, which appears to be Cloates Iſland.

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lying N. E. by N. and S. W. by S. It is of a moderate height, and pretty level, with a gradual ſlope at both ends, and tremendous breakers, running from each of them, about 3 miles into the ſea. It cannot be ſeen at a great diſtance, even in clear weather.

Captain *Naſh* found Cloates Iſland to lie in 22° latitude South, and in 92° eaſt longitude from the Cape of Good Hope; the variation 6° 30′ weſterly; then he made 3° 6′ eaſting to the iſland of Bally, and 7° 26′ weſting to Java Head.

By the *Haeſlingfield*'s account, this iſland lies in 22° 7′ latitude South, and 87° 49′ eaſt longitude from Cape Lagullas. Their variation the morning before was 6° 17′ weſterly. They ſteered from it, nearly North, for 7 days, when they made the land of Java in the latitude of 8° 30′; and in three days and half more made Java Head in 7° 12′ weſt longitude from Cloates Iſland.

From the difference between the two accounts, which amounts to about 7° degrees in their longitude from the Cape, the poſition of Cloates Iſland is far from being aſcertained; but as the ſhips, *Houſe of Auſtria* and *Haeſlingfield*, agree better in their run from thence to Java Head, it has given ſome means, at leaſt, of aſſigning a probable ſituation to this iſland. Captain *Vincent* is of opinion, that it does not lie much above 30 leagues from the coaſt of New Holland, while other navigators, equally judicious, remove it 50 leagues farther to the Weſt. Some French charts, not thinking this diſtance ſufficient, have placed Cloates Iſland 300 leagues weſtward of New Holland. A view of this iſland, given in one of them, has the following remark, *viz.* "Iſle Cloates, or Clouts, in 22° 0′ latitude South, and 93° 10′ longitude Eaſt from Paris, according to Meſſ. *De la Caille* and *D'Après*. Variation 7° Weſt." This longitude places Cloates Iſland in 95° 35′ Eaſt of London, and about 77° Eaſt from the Cape of Good Hope, which is 15° leſs than the longitude made by Captain *Naſh*, and about 9° leſs than the longitude made by the *Haeſlingfield*; therefore the French remark, founded upon a miſtake, is deſcribing an imaginary iſland of Cloates.

In 28° 20′ latitude South, and about 98° 30′ eaſt longitude from London, lies a dangerous rock juſt above the water, and about a cable's length. It is called the DANISH ROCK, from having been diſcovered the 17th of June, 1774, by a Daniſh ſhip, which ſounded near it, and had no ground at 120 fathoms. In the parallel of this rock, and at the diſtance of 200 leagues to the Eaſt lie

HOUTMAN'S ABROLHOS, or SHOALS, between the 28° and 29° ſouth latitude, and near the Coaſt of New Holland, as we have always obſerved, page 60. Theſe are the ſhoals whereon the ſhips *Zeewyk*, in 1627, and *Batavia*, in 1628, were loſt. The crew of the *Zeewyk* found them to conſiſt of 10 or 12 ſandy iſlands, all around joined to each other by reefs, and about 32 or 36 miles from the main land, which could not be ſeen by the people. Within this ring of iſlands, it is again roomy and deep. On the eaſternmoſt iſland, lying 16 miles diſtant from them to th S. E. they found ſome pieces of wrecks, and a little underwood, but no freſh water in the pits which they dug, though *Pelſaert*, in 1628, found water on one of theſe iſlands. The ſaid crew built, out of the wreck, a veſſel, wherewith they arrived at Batavia.

The

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The beſt account we have of theſe ſhoals is given by Captain *Daniel*, of the *London*, in June 1681, as may be ſeen in the following abridgment from *Thornton's Engliſh Pilot*.

" Wind at S. W. by W. ſteering *by compaſs* N. E. by E. at 10 A. M. the water was diſcoloured; a man at the foretop ſaw a breach riſe a-head of us; we preſently put our helm hard a ſtarboard, and ſtood away N. W. by W. and weathered the north-weſt end of it, about half a mile; at that diſtance, the depth 35 fathoms, white corally ground, with ſome red mixed; next depth (about two hours after we tacked) was about 40 fathoms, the ſame ground; and at 9 P. M. having ran off by log on a N. W. by W. courſe, about 24 miles, had no ground at 65. We continued ſounding all night, and had never leſs than 65 fathoms line out at a time; at ſix this morning, which was the laſt time we ſounded, veered out 100 fathoms, but had no ground at that depth.

" The breach, which we firſt ſaw, happened to be the northernmoſt of all, there being ſeveral; and by our computation lies near 20 miles in length along ſhore, which lies *by compaſs* W. N. W. and E. S. E. but the main land we could not ſee; but ſaw within this breach another not far diſtant from it, which made a channel, and the water ſmooth between them; and likewiſe within all theſe were ſeen ſeveral ſmall white ſandy iſlands, with ſome ſhrubbed buſhes on them; they ſeemed to be ſteep to, the water making no breach on them, though very low, or near the water's edge. The breach, which lies within, hindereth the ſea from breaking on theſe iſlands, the water being very ſmooth: provided any man ſhould be ſo unfortunate as to fall in with the ſouth end of them, I fear their ever getting off again, having a prodigious ſwelling ſea on upon the breach. Variation per evening, amplitude after ſight of the land, 2° 24′ Weſt."

In the parallel of 20° 30′ and about 80, or, according to others, 100 leagues diſtant from the coaſt of New Holland, lie the TRYAL ROCKS. *Seller*, who publiſhed his *Engliſh Pilot* in 1675, tells us they take their name from one of our Eaſt India ſhips, called the *Tryal*, that was loſt upon them, and which event is ſuppoſed to have happened in the year 1622; this aſſertion of *Seller* did not convince all his countrymen, for, in a ſubſequent edition of the *Engliſh Pilot*, 1703, we find the following note on the Tryal Rocks; " There are ſome wild reports going into Batavia, that they have been ſeen above 20 leagues in length, but, by moſt laborious enquiry, could never hear of any perſon that ever ſaw them; it is, therefore, adjudged falſe, or that they are farther to the eaſtward than any ſhip deſigned for the weſt end of Java will go; otherwiſe muſt have become familiar to the Dutch, who yearly have ſome one or other of their ſhips that ſail over it, if their accounts be good." However, the celebrated navigator, *William Dampier*, who was perſuaded of the exiſtence of theſe ſhoals, had reſolved, in his return from New Holland, in 1700, to go in ſearch of them, but was prevented in his attempt by ſickneſs and want of proviſions. " There is ſcarce any doubt," ſays *Dampier*, " but I ſhould have found them, and this diſcovery muſt have been of the greateſt ſervice to all thoſe who navigate in theſe parts." They were ſeen at laſt in 1718, by the Dutch, who ſent a ſloop from Batavia, in order to explore them. The plan that was taken then, deſcribes the whole range, above and under water, lying

Eaſt

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East and West about 40 miles long, and 15 broad, in 19° 20′ latitude South, 80 leagues from New Holland.

In July, 1777, Captain *Matthias Zoſp*, of the Daniſh ſhip, *Fredenſborg Slott*, ſaw likewiſe the Tryal Rocks, and his account places them, *viz.* By a good meridian obſervation, when they bore Weſt 12 miles, latitude 20° 40′ South, meridian diſtance 23° 45′ East from St. Paul; but by the run afterwards, S. ¼ W. 840 miles from Java. "Theſe rocks," ſays the Daniſh account, "lie N. W. and S. E. and extend in length about 24 miles; the centre of them appears very broad, and not higher out of the water than a ſmall veſſel's hull, or a large fiſh lying upon the water; the extreme are cluſters of ſmall broken rocks, now and then appearing as the ſea retires; they are about 4 miles from each extreme of the main rock, upon which there is a great ſurf.

In 1770, the *Harcourt*, Captain *Nathaniel Paul*, had 40 fathoms, ſtiff clay, on a bank, which they reckon in 21° 0′ ſouth latitude, and 29° 30′ from St. Paul, or about 106° 17′ eaſt longitude from London. The ſituation of this bank is very near that in which the Daniſh accounts place the Tryal Rocks. But this account is ſo different from that of the Dutch, both in the deſcription and the latitude of the rocks, that it may be queſtioned whether thoſe ſeen by the *Fredenſborg Slott*, are the ſame with the rocks which were ſurveyed by the ſloop from Batavia; and unleſs a new Dampier will attempt to go again in ſearch of the Tryal Rocks, we muſt patiently wait until ſome lucky chance elucidates the matter to the ſatisfaction of all navigators.

The KEELING, or COCO ISLANDS, are four ſmall iſlands, ſurrounded by many iſlots and breakers, and extending above 16 leagues from North to South. They are very low, not to be ſeen above 5 leagues off in clear weather, from an Indiaman's deck, and covered all over with trees. The ingenious Mr. *George Robertſon* has determined their ſituation by an Arnold's box chronometer in a ſhort run from Java Head, and corroborated by three ſets of Lunar obſervations, objects East and Weſt.

The northernmoſt is a ſingle low iſland in latitude 11° 50′ South, and longitude 8° 1′ Weſt of Java Head, or *97°.13′ East from London. It lies due North from the weſternmoſt of the cluſter of iſlands, diſtant 14 miles; "a fair paſſage lies between them, through which," continues the ſame gentleman, "we paſſed in the *General Coote*, Captain *Baldwin*.

"The ſouthernmoſt are a circular cluſter of low iſlands, whoſe latitude is from 12° 4′ to 12° 23′ South. Their eaſtern extremity 7° 50′ Weſt of Java Head, or 97° 24′ from London, and their weſtern extreme in the meridian of the northernmoſt iſland. In ranging along the north part of the cluſter of iſlands, we ſaw no danger detached from them, they being ſteep to, cloſe into the ſhore, which is a beautiful white beach, appearing like ſand, but which I believe is white coral; a reef runs out from the north-weſt corner of theſe iſlands, a ſhort quarter of a mile."

* Although the longitude of Batavia ſeems to be very well aſcertained at 106 deg. 56 min. 52 ſec. from London, yet there is a very conſiderable difference in the various reports of the longitude of Java Head, which is only inferred from that of Batavia. In the *Connoiſſance des tems* for 1799, its longitude obſerved at ſea is given at 105 deg. 10 min. 47 ſec. eaſt of London, which agrees within very few minutes with that aſſumed by M. *Robertſon*.

*N. B.* The

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*N. B.* The cluſter of iſlands mentioned by Mr. *Robertſon*, is repreſented in the Dutch plans as forming a fine harbour.

To the E. N. E. of the Coco Iſlands, lies CHRISTMAS ISLAND, called alſo MONEY ISLAND; its latitude is in 10° 30′, and the longitude generally aſſigned to it, near the meridian of Java Head. This iſland is high, and of a beautiful appearance, abounding with trees of different ſorts, particularly coco-nuts and limes, and may be ſeen 10 leagues off, in clear weather. An anchorage in 14 or 15 fathoms was ſuppoſed to be on the north ſide of it, but Captain *George Richardſon*, of the *Pigot*, has proved the falſity of that report. "In this courſe," (from Java Head, ſee above p. 64) ſays the Captain, "I made Chriſtmas Iſland, at which I was very deſirous of anchoring; I had both my boats in ſhore ſounding for two days round the iſland, but without being able to find anchoring ground, having 95 fathoms, hard rocks, within a cable's length of the ſhore. The iſland all around is ſteep to, nor is there any landing place for a boat, except one in the north-weſt part of the iſland, which is a ſmall white beach, reſembling ſand, though it is nothing but white ſtones and coral. The boats landed there, and brought off a number of land-crabs and boobies, and ſaw ſeveral wild hogs, but did not diſcover any runs of water. After being fully convinced there was no anchorage, I ſtood to the northward."

## GENERAL DIRECTIONS FOR THE COURSE FROM THE CAPE OF GOOD HOPE TO INDIA, BY THE ISLE OF FRANCE, OR MAURITIUS.

### *INSTRUCTIONS FOR SAILING INTO* DIEGO RAIS OR ISLE RODRIGUE, AND INTO MAURITIUS SHOAL, TO THE SOUTHWARD OF MADAGASCAR.

VESSELS which are bound to Mauritius, after having doubled the Cape, ſhould keep in the parallels of latitude from 35° to 36° till they have run eaſtward as far as between the 57th and 58th meridian from London. Thence, if they ſail E. N. E. and afterwards N. E. they muſt manage ſo as not to meet the parallel of 26° till they are in 63° 30′ eaſt longitude, that is to ſay, North and South of the Iſle Diego Rais; from this laſt poſition they will ſteer North, as far as the 20° of latitude. By keeping on their courſe in this manner, ſhips will prevent the bad effects ariſing from the errors in their reckoning, and make ſure of the port they are bound to. As ſoon as they ſhall have attained the latitude of 20° they will be able to make good their courſe Weſt, till they get ſight of Mauritius. The variation of the needle will enable them to know, very nearly, whether they are to the eaſt-



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ward or weſtward of Diego Raiz. If to the eaſtward, the variation will be found from 10 to 12 degrees, according to the diſtance they happen to be from the iſland: but if they ſhould find it between 14 or 15 degrees, they will then be to the weſtward of the iſland. Farther obſerve, that if the difference of the computation of longitude be to the eaſtward, and they have got ſight of Diego Rais, they ſhould paſs it to the ſouthward.

Diego Rais, named by the French Isle Rodrigue, lies in 19° 40′ latitude South, and 63° 16′ longitude Eaſt of London. This iſland, mountainous and rugged, having very little of level ground, is every where covered with trees and ſhrubs, and may eaſily be ſeen at the diſtance of 12 leagues. Its length from Eaſt to Weſt is about 6 leagues, and its greateſt breadth 2 ½ leagues from North to South. It is encompaſſed with reefs of ſhoals and rocks from 3 to 6 miles from the ſhore, except the N. E. part of the iſland, which is bold to, having, within half a mile of the ſhore, 16, 18, and 20 fathoms, from which depth, as you ſtand to the northward, you will have 25, 30, 40, and 45 fathoms 3 miles off the ſhore, and without that, no ſoundings; farther to the weſtward the ſoundings are more gradual. On the middle of the iſland there is a remarkable Peak, which is a good mark for the road, or harbour; when this peak bears South, you are then a-breaſt of the road; and when it is bearing from S. by W. to S. S. E. you may ſtand in ſhore to 16 or 18 fathoms, gradual ſoundings; but the bottom in general is coral rocks, though you may find, in ſome few ſpots, ſand and mud; however, there is no ſafe anchoring without the road. You may ſtand off ſhore with the above bearings, the water deepening pretty gradually to 30, 40, and 45 fathoms, and then no ground, as it is ſaid above.

This road, or harbour, is very ſafe, when you are in; you may anchor then in 9, 11, 12, 13, or 14 fathoms, ſand and mud, clear and good holding ground, about a ¼ of a mile from a reef which is in-ſhore from you, and about a ¼ of a mile from the ſhore: this reef being very ſhallow, the landing at low water is very bad. Near this road there is a ſmall level ſpot of land between two hills, with ſome houſes, where the French keep a few ſoldiers and black ſlaves; their buſineſs is to get land turtles that are ſent to Mauritius when the veſſels arrive, which are conſtantly employed in that ſervice; but the number of thoſe turtles diminiſhes daily, and there is even reaſon to fear that the rats and wild-cats, which have multiplied exceſſively in the iſland, will ſoon deſtroy the whole ſpecies.

Veſſels which have occaſion to touch here ſhould ſtand in for the iſland on the north-eaſt ſide, at about ½ a league's diſtance, and then coaſting by the reefs until the northernmoſt point of the ſaid iſland bears S. W. they may either lie a-try or make ſhort trips, whilſt they wait the return of their long-boat, which muſt be ſent a-ſhore at a proper time, leſt ſhe ſhould fall to leeward of the houſes. They are then to ſail at a muſket-ſhot diſtance along the reef, which lies at the northern point; and as ſoon as the flag upon the houſes bears S. W. *by compaſs* they ſhould get their larboard tack on board, and ſteer S. W. by S. to go to leeward of ſeveral rocks that are lying off the edge of the reef; then they may anchor in 9 fathoms water, ſandy ground, about a piſtol-ſhot from the reef; and the bearings and diſtances will be as follows, *viz.* The tail of the reef forming the bay on the eaſt ſide N. E. 3 miles; the flag S. W. 3° S. 1½ mile; Diamond Iſland, which lies the neareſt of all, W. by S. 5° S. 3 miles; Boobie's Iſland, the fartheſt off,



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W. by N. 5° N. and the point of the breakers on the ſtarboard, N. W. by W. near 4 miles. When you go out of the anchorage, provided your ſhip has not driven much to leeward in getting under way, if you ſteer North it will carry you by the eaſt end of theſe reefs in about 10 or 12 fathoms, when you may eaſily ſee the bottom; ſhould your courſe be N. by E. or N. N. E. you will then keep the mid-channel between the rocks and the reef, by ſteering at firſt N. 3° W. and afterwards North; and when you find yourſelf between the two, then you ſail above half a league over a rocky bottom that is ſeen very diſtinctly, and on which there is at leaſt 8 fathoms water.

The winds at Diego Rais blow conſtantly between the Eaſt and S. E. ſometimes very ſtrong gales, with ſhowers of rain; but more frequently freſh gales, with fair, cloudy, or hazy weather. Sometimes the weather is moderate, fair, and clear, and the ſea remarkably ſmooth for ſeveral days together; but it is calm very ſeldom.

The iſland is ſubject to hurricanes, and in the ſtormy months, which are January, February, and March, they are ſometimes very violent. It has been obſerved at Mauritius, that when the velocity of the wind, in the moſt impetuous hurricane, exceeds 140 feet n a ſecond of time, nothing is able to reſiſt its fury. The ſudden and extraordinary variation of the barometer, in thoſe latitudes between the Tropics, is the only ſure indication they have to foreſee a hurricane, and prepare againſt it a few hours before it begins.

When His Majeſty's ſquadron, under Commodore *Tiddeman*, was there in September, October, and November, 1761, during the 7 weeks they cruiſed off this iſland, it was obſerved that the current for ſeveral days ran ſo ſtrong to the weſtward, that it was with difficulty they could keep their ſtation, with a conſtant preſs of ſail on the ſhip, &c. and notwithſtanding their utmoſt endeavours, they often found that they had loſt ground every day. At other times the current ran as ſtrong to the eaſtward, ſo that when a gale of wind had happened that put the ſhip under cloſe reefed top ſails, they did not get ground, nor barely hold their own, for ſeveral days together. The current was obſerved to run with ſtronger force at the full and change of the Moon.

There is a regular tide in the harbour; the flood to the eaſtward, and the ebb to the weſtward, at the rate of 2 knots *per* hour. It flows N. by E. being high water at three quarters after twelve, on the full and change of the Moon, when alſo its perpendicular riſe is about 6 feet.

Plenty of good water may be got at ſeveral convenient watering places in the bay; and alſo plenty of fire wood for cutting. They have abundance of fiſh of ſeveral ſorts, of which it is remarked, that thoſe caught with hook and line, in deep water, are unwholeſome and of a poiſonous nature, whereas thoſe got in a ſeine or net in ſhore, have nothing noxious, but, on the contrary, are very good and wholeſome. The people on board Commodore *Tiddeman's* ſquadron, although they had been warned by the French inhabitants, experienced themſelves the truth of this dangerous and unaccountable* difference.

Beſides

* Mr. *Nichelſon*, from whoſe remarks, p. 59, this difference is mentioned, ſeems to confine the poiſonous quality to the fiſh caught in deep water. We read the following obſervation in *Abbé Rochon's* late publication: "They find on this coaſt



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Beſides the quantity of land and ſea turtle found at Diego Rais, particularly of the latter, they have likewiſe abundance of Manattees, which are good and wholeſome food; but herbs and vegetables are very ſcarce, owing to the want of cultivation. The ſoil is nevertheleſs very rich and fertile; limes, oranges, figs, long-pepper, &c. are the ſpontaneous productions of this iſland, whoſe climate is very healthy, and of an excellent temperature.

The diſtance from Diego Rais to Mauritius is computed to be 100 leagues. When you have not made the former, and you are uncertain as to your diſtance from the latter, you ought to ſail with the utmoſt caution, for fear of falling in with Mauritius unexpectedly in the night time, on account of the dangerous reefs which ſurround the eaſtern part of it, ſtretching in ſome places very far into the ſea.

The Isle of France is called by the Engliſh and the Dutch Mauritius; it can eaſily be ſeen 15 or 16 leagues off in clear weather, but the clouds and fogs that very frequently riſe above it, prevent its being deſcried at that diſtance. The appearance of the land, on which ſeveral mountains, of different ſhapes and magnitudes, rear their heads, is very irregular. When you make it in the latitude of 20°, there appears to the ſouthward a group of mountains, called the *Bamboe* Mountains*, which lie above the ſouth-eaſt Port; and on the North ſide you will ſee four ſmall iſlands which lie N. E. of the northernmoſt point of the main-iſland. It is between theſe four iſlots they generally paſs in ſailing to the north-weſt Port, which is the chief place in this iſland.

Isle Ronde, or Round Island, which is a ſmall iſle that lies fartheſt out at ſea, is alſo the moſt remarkable when you come from the eaſtward; it can be ſeen 10 or 12 leagues off. It is not more than one mile long, appearing round like a haycock; as you approach it you will perceive a large barren rock ſtill ſmaller, which is called Serpents Iſland; this lies about a quarter of a league N. N. E. 5° E. from Round Iſland.

Round Iſland lies in 19° 50′ latitude South, and when you get the length of Mauritius in that parallel, you will deſcry this ſmall iſle ſooner than the great one; eſpecially when the ſky is a little clouded, and the horizon hazy. In coming from the ſouthward, Round Iſland appears leſs, but then you will perceive its greater extent; but whether you come from the ſouthward or from the eaſtward, you ſhould always ſteer ſo as to paſs to the ſouthward of it, at $\frac{3}{4}$ of a league, or at a good $\frac{1}{2}$ league's diſtance; thence you afterwards make ſail towards another ſmall iſland, named Coin de Mire, or the Gunner's Quoin, from its ſhape, which lies about 10 miles from it S. W. by W. $\frac{1}{4}$ W. 3° 30′ Weſt.

Three miles N. E. of the Gunner's Quoin, and about 7 W. S. W. of Round Iſland, lies Long, or Flat Iſland, ſo called becauſe its greateſt part is very low land; it is cut in two by a ſmall arm of the ſea, paſſable only with pettiaugas. To the N. E. of it is a large

(of Madagaſcar) ſeveral kinds of fiſh, of which you are not to allow yourſelf to eat, without firſt having introduced a piece of ſilver under their tongue; and when the piece of ſilver loſes its colour, and becomes black, thoſe who ſhould eat of that fiſh would be expoſed to the moſt fatal accidents. The ſquadron of Admiral *Boſcawen* ſuffered a conſiderable loſs at Rodrigue, for having neglected to take this precaution." *Voyage à Madagaſcar et aux Indes Orientales, par M. l'Abbé Rochon. Paris, 1791, p. 23.*

* Theſe are reckoned among the higheſt of the iſland, whoſe elevation above the level of the ſea is only 2,800 Engliſh feet.

rock,

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rock, which reſembles a huge tower; it ſeems to be ſeparated from Flat Iſland, though it is joined with it by a ridge of rocks even with the water's edge. The north-weſt end of Flat Iſland is high and ſteep to, and the common paſſage for veſſels lies between this iſland and the Gunner's Quoin.

As ſoon as you have doubled Round Iſland to the ſouthward, you are to ſtand for the Gunner's Quoin, leaving it, however, a little on the Larboard hand, to enable you the better to get clear of ſeveral rocks above and under water, ſtretching along the north ſide of the Quoin, from which, the fartheſt in the ſea, are about a muſket-ſhot diſtant.

When you have paſſed the weſternmoſt rock, you will approach the Gunner's Quoin, the weſt ſide of which is the higheſt, and ſteep cloſe to the ſea; from this place you are to ſail round the *Pointe des Canonniers* (Canonniers Point), that lies directly S. W. 2° Weſt of the moſt elevated part of the Gunner's Quoin, making a due allowance for ſteering clear of the breakers off the point, as they run out the length of a cannon-ſhot. The ſetting of the currents, which laſt about an hour, is generally very rapid between theſe iſlands, and it has been found, by repeated trials, that they run at the rate of 3 miles an hour. The flood ſets north-weſtward, and ſometimes weſtward, and the ebb juſt the contrary. You ought therefore to watch the tides very carefully, and keep a little more to the one or the other ſide, as circumſtances may require.

Directly oppoſite to the Gunner's Quoin, Long Iſland forms a long ſandy cove, at the ſouth-weſt point of which lies a ledge of rocks running out the length of a cannon-ſhot. As this reef is extremely dangerous, you ought to ſail very near to the Gunner's Quoin, or at leaſt to keep in the mid-channel.

The intermediate ſpace between the Gunner's Quoin and the northern parts of Mauritius is full of ſhoals; for this reaſon you muſt never venture to paſs that way, unleſs you ſhould be very well acquainted with the ſeveral channels.

In caſe of a calm, whilſt you are between theſe iſlands, the moſt expedient method will be to come to with a ſtream, or kedge anchor, in 15 or 20 fathoms, gravel or coral, which is the common ground here; by this timely precaution you will avoid either being driven by the currents upon the reef, joining with Flat Iſland; or being forced between that and Round Iſland, where there are ſeveral ſhoals, and particularly a ledge of rocks ſtretching out from Round Iſland near 3 miles to W. N. W. This ledge, which never breaks but when the ſea runs high, renders this channel narrow and dangerous. You may, indeed, paſs it without meeting with any accident, yet it is much ſafer when you are to leeward of Round Iſland to paſs without Flat Iſland, ranging along it for about 1 ½ mile, and from thence to ſail towards Cannoniers Point.

After you have doubled this point, you muſt run along the ſhore, to ſail as near as you can to the point of the ſea arm, which lies about 3 miles off from it. You then continue your courſe, keeping near 1 mile from the reefs that extend along the coaſt, and taking particular care to avoid thoſe at the entrance of the *Baie des Tortues*, (Turtle Bay), as well as of the *Baie du Tombeau* (Monument Bay) which are ſtretching the fartheſt to ſea; to avoid

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avoid theſe you are to keep in 13 or 14 fathoms at leaſt, in the day time, and 20 during the night.

From the reef *du Tombeau*, your courſe ought to lie a little more to the ſouthward; then S. S. W. till the ſtarboard point of Great River, and the mountains of the guard-houſe with a ſmall hummock, are brought to bear all in one.

When you have got into this bearing, ſteer S. W. for 2 buoys at the entrance of the harbour on the reef's end of *l'Iſle aux Tonneliers* (Cooper's Iſland), and diſtinguiſhed by 2 ſmall flags. This courſe ſhould be continued till you open the moſt advanced point of Cooper's Iſland, near the ſmall hill in the hollow of the cape; you come then to an anchor in 14 or 15 fathoms, at a cable's length from the 2 ſmall flags juſt mentioned.

If the winds ſhould happen to blow from the North, or N. W. which is ſometimes the caſe, it will be needleſs to anchor without, becauſe you may then eaſily enter the harbour, whoſe channel is marked out by buoys with ſmall flags upon them; you muſt ſteer S. E. and S. E. by S. for 2 heads of mountains, which are called the *Two Peter Boats* (leaving them a little to ſtarboard), till you are quite within the firſt point of Cooper's Iſland.

In caſe you ſhould not make Round Iſland till the evening, and ſhould not be able to double the Gunner's Quoin before night, as it would be extremely dangerous to lie expoſed between the iſlands, when the darkneſs does not permit you to diſtinguiſh objects, it is much ſafer to make ſmall trips in the offing, or in ſight of Round Iſland, with this caution, however, not to ſtand off farther than 2 leagues from it, and when you tack, to keep your broad-ſide towards Mauritius, for fear of the reefs round it; for as this part is very ſhallow, you ſhould run the riſk of being loſt upon the ſhelves before you ſaw the land. You ought not, above all, in this track, to lie to, becauſe of the tides.

After doubling Round Iſland, if you are able to diſtinguiſh the Gunner's Quoin, and Long Iſland, ſo as not to loſe ſight of them, which may be done in a bright moonlight night, and fine weather, you may then keep on your courſe, and ſail betwixt them; it will be ſufficient if you guard againſt the ledges of Long Iſland, and of the Gunner's Quoin. Having paſſed the latter, and being about a league and $\frac{1}{2}$ to the Weſt of it, you ſhould ſteer W. S. W. *by compaſs*, to range along the reef of Cannoniers Point. They generally light a fire upon this point when any veſſels are in ſight; as ſoon as that fire bears S. E. of you, about 3 miles, you will have doubled the reef, and may then keep coaſting along, taking care, however, not to approach the ſhore nearer than 15 fathoms.

However, as it is difficult to diſtinguiſh the entrance of the harbour in the night-time, and as you may be eaſily deceived by the different fires on the mountains, it will be much ſafer, after you are paſſed Cannoniers Point, to anchor in 18 or 20 fathoms, and there wait for day-light. Above all, when there it but little or no wind, you muſt never venture to come near Cannoniers Point, whether in the day or night time, becauſe of the eddy of the tides, which run there with great velocity.

The foregoing Directions for ſailing into Mauritius, are tranſlated from the French, and appear to be as circumſtantial as poſſible; we ſhall, nevertheleſs, tranſcribe from the journals of

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of the ſhips *Pacific*, Captain *Charles Barkley*, and *Royal Charlotte*, Captain N. the following additional obſervations, accurately made in the years 1788, and 89.

" When you approach Mauritius, you deſcry *Iſle Ronde*, (a ſmall round Iſland) firſt, owing to the cloudineſs over the great iſland; you run up to it ſo as to paſs about 2 or 3 miles on the ſouth ſide. You will ſee right a-head an iſland in ſhape like a Gunner's Quoin; ſteer right for it until within a mile of it; then edge away ſo as to paſs it to the northward, between it and an iſland called *Doree Houſe*, a flat iſland, having a large white ſtone in the middle of it, and from which it takes its name; then the Quoin bears South $\frac{1}{2}$ a mile. Haul up gradually; S. W. is the higheſt you can want to ſteer, and there is nothing to fear but the points, which in the day you ſee; keep half or three quarters of a mile off along ſhore. I would adviſe not to come nearer of the points than one mile; that diſtance is near enough for fetching into the outer road of Port Louis.

" You will paſs two or three batteries; and it is reckoned 7 leagues to the Pavillions, two little white flags hoiſted on the extreme of the north-eaſt ſhoal, at the entrance of Port-Louis Harbour. A hand on the fore-yard in the day will always ſee the water diſcoloured a good way a-head, which, if by chance you keep too near in, will conſtantly warn you of danger. A pilot meets you 4 miles from the harbour, to carry you in. You muſt not enter in the night, it is dangerous. *Serpent Iſland* is ſmall, and lies N. N. E. a round iſland.

| | | | | |
|---|---|---|---|---|
| * Latitude obſerved in the town of Port-Louis, - - - - - | 20° | 9′ | 33″ | S. |
| Longitude of Ditto, from Greenwich, obſerved by means of 70 diſtances of the Sun and Moon, on ten different days in Port-Louis on ſhore. - - - - - - - | 57 | 29 | 15 | E. |
| Longitude per *Arnold's ſmall Chronometer*, allowing a mean rate between her and Macao, for Port Louis, - - | 57 | 38 | 00 | E. |
| Ditto per large Time-piece, with a mean rate, - - | 57 | 27 | 15 | E. |
| Mean Obſervations Sun and Moon and Time-pieces, - | 57 | 28 | 15 | E. |
| Variation per many Obſervations, - - - - - | 17 | 10 | on ſhore. | |
| | 16 | 20 | in the road. | |

The ſhoal to the ſouthward of Madagaſcar, mentioned in the title of this article, was diſcovered by a Dutch officer, who ſounded on it, when attempting a paſſage to Mauritius, and was afterwards captured by the *Royal Admiral*, October 1795. He aſſured me, ſays Captain *Bond*, he had ſeveral good caſts, the ſea running very high and confuſed. From the Maſt-head to the northward appeared ſhoaler water and breakers, on which he ſtood to the ſouthward, and had no ground with 60 fathoms in leſs than 15 minutes, the veſſel going about 3 knots. The latitude of the ſhoal obſerved by this officer is 31° 44′ South, and may be depended on: the longitude per eſtimation about 44° Eaſt.

* This agrees ſurpriſingly with the *Connoiſſance des tems*, for 1779, wherein the latitude of Port Louis is 20 deg. 9 min 25 ſec. and its longitude 55 deg. 8 min. 15 ſec. from Paris, of 57 deg. 28 min. 30 ſec. from Greenwich.

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# INNER PASSAGE.

## DESCRIPTION OF THE COAST OF AFRICA FROM *CAPE LAGULLAS* TO *CAPE CORRENTES.*

### STRUYS-BAY,—FLESH-BAY,—FISH-BAY,—MOSSEL-BAY,—ALGOA-BAY, &c.

FROM Cape Lagullas to Cape Infanta the weſt point of Struys Bay, called alſo Bay St. Sebaſtian, the coaſt extends circularly to the N. E. about 40 miles. This point is low and covered with ſand downs, as well as the land to the eaſtward of it. STRUYS BAY is nothing more than a deep bight, having good anchoring ground, but no ſhelter, except from the north-weſterly winds; beſides it is expoſed to a continual ſwell and ſtrong current, and is therefore to be avoided.

The eaſt point of Struys Bay is low and ſandy; thence the land, 55 miles farther, forms another bight, called FLESH BAY, or BAY ST. BRAS, which is entirely open, and where there is no ſhelter but from northerly winds: there is in it a ſmall iſland, and a round white ſand, by which it is eaſily known. When this bay bears North, ſeven lofty hills inland are ſeen over it, the ſhore of the bay being low land. Cape St. Bras, the weſt point of the bay, is pretty high and ſandy, with a reef ſtretching out juſt as from the points above deſcribed.

From Fleſh Bay the coaſt lies eaſterly to FISH BAY, named BAY ST. CATHERINE by the Portugueſe diſcoverers. This is likewiſe a foul open bay; when a-breaſt of it you ſee to the North a mountain inland, upon which ſtands another like a barn, and to the Weſt are the 7 high hills before mentioned, by which marks this bay is eaſily known. To the Eaſt of this lies the little bay of St. Sebaſtian, in which a large river, called Elephant's River, diſcharges itſelf.

From Fiſh Bay the coaſt extends to the E. by N. 45 miles to Cape Delgado, the weſt point of MOSSEL (Muſcle) BAY, which is the *Babia Formoſa* of the Portugueſe. This is an open bay like the others, but it runs in 6 miles to the weſtward of the weſt point, and one lies there ſheltered from the north-eaſterly to South winds, but expoſed from the S. E. to Eaſt; you find within a ſmall rocky iſland and ſome brackiſh ſprings. Though it is the beſt of all the bays hereabout, you are not to make uſe of it, except in caſes of the greateſt neceſſity, becauſe the S. E. and Eaſt winds make there a great ſea, and the water for drinking muſt be taken from brackiſh pits. *Cape Delgado*, its weſt point, is of a middling

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middling height, flat and green, and appears from the ſea like a table hill. Off this is good anchoring ground every where, but from the outermoſt point runs out a reef of rocks about 1½ mile to the eaſtward. This point lies in 33° 55′ latitude South. The land to the eaſtward of the bay conſiſts of high double mountains, running down to the ſea, with little ſtrand, whereby the bay is known in coming from the eaſtward, this being the laſt high land near the ſea, and the coaſt to the Weſt being lower, with the hills farther inland.

Above 40 leagues to the Eaſt of Cape Delgado, lies Cape Recife, and 30 miles Weſt of it, the Bay, or Road of St. Francis. This Cape, which is ſurrounded with breakers, is the ſouth point of Algoa Bay, and lies almoſt S. W. 40 miles from Cape Padron, a flat, woody hill, and the eaſternmoſt point of the ſame bay. ALGOA BAY is very deep, and there may be got freſh water and fire wood; the ſoundings going in are from 24 to 10 fathoms. At the north end of it lie 4 ſmall iſlands, between which and the main land you may ſafely anchor in 12 fathoms, ſand. Seven leagues Eaſt of them, and 5 Weſt of Cape Padron, are the 2 ſmall iſlands called *Chaons*, or the Grounds, by the Portugueſe: about 2 leagues to the ſouth-eaſtward of theſe, and 3 from the main of Africa, lies the rock on which the *Doddington*, outwardbound Indiamen, was loſt in 1755. They had doubled the Cape, and made 11 degrees meridian diſtance from Cape Lagullas. Judging they were near the Madagaſcar ſhore, and the paſſage open, they bore away to the northward; but on the 17th of July, about a quarter before one in the morning, they ſtruck, ſaw the breakers, and in leſs than a quarter of an hour the ſhip went to pieces. Out of 270 people only 23 were ſaved; they remained 6 months on this rock, to which they gave the name of BIRDS ISLAND, and built a ſloop out of the wreck. The chief mate and 16 people, being all that remained alive, went to Madagaſcar in her, when the *Carnarvon*, Captain *Norton Hutchinſon*, took them on board, and carried them to Madras.



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# REMARKS
ON
# MOSSEL, PLETTEMBERG, AND ALGOA OR ZEVARTKOEP's RIVER AND BAYS
ON THE
# *SOUTH-EAST COAST OF AFRICA.*

Taken on board His Majesty's *Snow Hope*, *J. W. Granger*, Esq. Commander, between the 24th July, 1797, and the 3d of October following.

BY LIEUTENANT WILLIAM Mc. PHERSON RICE,
*Of the Royal Navy.*

| Place, and Time when. | Description of Places, situation of shoals, directions for sailing, with the Latitude Longitude, flowing of the Tides, and variation of the Compass. | Marks for anchoring. | Provisions and Refreshments. | Wooding and Watering. | Fortifications & Landing Places. | Trade & Shipping. |
|---|---|---|---|---|---|---|
| MOSSEL BAY.<br><br>Arrived 16th September, 1797.<br><br>Sailed 3d October following.<br><br>Cape St. Blaze called also Cape Delgado.<br>Lat. 34 10 to<br>Lon. 22 18 E.<br>Var. 27 54 W. | There is no danger in approaching this Bay, except a reef off Cape St. Blaze, (its south-west point) on which the sea generally breaks S. S. E. ½ E. from the Cape, and is not more than 3½ or 4 cables from it; there is a small channel, of 5 fathoms water, between the shoal and cape, and it is steep to on its off side: The Western Reddish bluff kept open of the craggy point (that is, ¼ to the westward of the cape), bearing W. by N. ½ N. leads you about ¼ or ½ of a cable within the reef, in 16 or 18 fathoms; and when you bring the Cape bluff to bear W. N. W. you may haul directly into the bay, and choose your depth of water, the soundings being regular, and sandy bottom. This bay is open to the wind from East to South, and in that space blowing fresh, a great swell sets in. Mr. Abrie, the Port holder, who has resided here 12 years, and who appears to be a well informed man, told me he never knew a S. E. gale blow more than 24 hours, and that, in general, it was moderate in the evening.<br>During our stay, he foretold the change of wind and weather frequently, and I scarce ever found him wrong in his conjecture. Tide flows, full and change, 3 h. 00 m. rises and falls 6 feet perpendicular.<br>Here are four rivers in this bay, *viz.* Hortenbrack, Little Brack, and Great Brack, neither of which will admit a boat. | The Seal Island N. W. by W. Corn Magazine (which is a long white stone building) S. W. by S. and the outer point South; you will then be in 7½ fathoms, and distant from the shore 7-8ths of a mile. | Beef and mutton may be purchased at 2d. and 3d. per pound. Vegetables and fruit are scarce; fish are plenty near Seal Island; and about the cape and its reefs on the rocks ashore you may get oysters. | Only brush wood to be got near the bay; but at a small distance up the Great Brack river is plenty of large timber.—Water is convenient to the landing place, and in general easy to be got off. | There are no fortifications.—The landing place is on a sandy beach, in a small bay near the N. W. of the point Holders. There is another small bay ½ mile to the S.E. of it, where you may land, when there is a high sea. N. B. At the south-east point of either bay, a wharf, or pier might be easily built, stone and timber being handy, and lime stone in abundance. | This place formerly exported annually to the Cape of Good Hope 5,55,000 ps. of corn, in 3000 sacks; but no vessel having been sent for more than four years, the farmers have neglected to cultivate more than what serves for their own consumption. |

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| Place, and Time when. | Deſcription of Places, ſituation of Shoals, &c. | Marks for anchoring. | Proviſions and Refreſhments. | Wooding and Watering. | Fortifications and Landing Places. | Trade & Shipping. |
|---|---|---|---|---|---|---|
| PLETTEMBERG BAY. Arrived 24th July, 1797. Sailed 10th Aug. following. | *Seal Cape* is the ſouth weſt point of the bay, may be eaſily known by a remarkable gap in the land, about 1 mile to the weſtward, which, when you are a few leagues to the ſouthward, gives the cape the appearance of an iſland. The only danger in approaching the bay is the Whale reef, which is a circular ſhoal of rocks bearing S. E. by E. *by compaſs*, from the cape, and diſt. ſeven eighths of a mile. The ſea in general breaks very high over it, and there is a paſſage, ¼ of a cable wide, between it and the cape, with 9 fathoms the leaſt water. This channel ſhould not be attempted, but in caſe of neceſſity, as there is generally a great ſwell; and when it blows ſtrong the wind baffles when you are near the cape.<br>By giving the point a birth of 1 mile, you may paſs ſafely to the ſouthward and round the eaſt ſide of the Whale, which is ſteep, having 18 fathoms water not more than 30 or 40 fathoms from it; and when you open the ſouth end of the long ſandy beach, with the high rocky point on the north ſide of Seal Hill, you are to the northward of the ſhoal, and, if the wind permits, may haul cloſe into the bay. The wind from Eaſt, ſouthward, to S. W. ſets a heavy ſwell into the bay; but the inhabitants ſay, it never blows ſtrong from the S. E. to be of any continuance.<br>SEAL CAPE.<br>Lat. 34° 06′ 30″ South.<br>Long. 23 48 00 E. Sup. 23° 20′<br>Var. 27 12 00 Weſt.<br>Tide flows full and change 3 h. 10 m. riſes and falls 5 or 6 feet perpendicular; no ſtream or tide runs but in the morning: a ſtrong current ſets out of the bay, between the cape and the Whale. | The common anchorage is S. by E. ¼ E. ¼ of a mile from the Governor's ſtore houſes, being convenient for ſhips to take in timber; you will be in 17 or 18 fathoms water; but by bringing the Cape to bear S. by E. ¼ E. and the Gap S. W. you will be in 8 ¼ or 9 fathoms water, good ground, and more ſheltered. | Meat to be purchaſed from 2d. to 3d. per pound, fowls 1s. each, vegetables ſcarce; but fiſh to be caught in abundance near the Cape, and about the rocks off the landing place. | Wood may be cut near the landing place. Watering is difficult as you have to roll the caſks near 300 yards over a heavy ſand, and to raft them through a ſurf which frequently breaks high over the breach. | There are no fortifications.—The landing place is on a ſandy beach near the governor's ſtore-houſes; at the South end is a ſmall river, which runs up 1¼ miles, to a farm occupied by Mr. Booth; the mouth is generally cloſed with a dry ſandy bar: At both ends of the beach are rocky points projecting out, and from the ſouth point, E. S. E. 1 cable's length, are ſome rocks, dry at low water, which break off the ſea. | This place has not been frequented by any veſſels, except thoſe formerly ſent from the Cape of Good Hope, by the Dutch company, for timber; and I am told, about 12 miles to the N. W. of the landing place, is a foreſt, containing various timbers, and ſome of very large dimenſions, fit either for ſhip or houſe building. This bay, like the former, abounds with whales, in July, Auguſt, and part of September. |



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| Place, and Time when. | Deſcription of Places, ſituat on of Shoals, &c. | Marks for anchoring. | Proviſions and Refreſhments. | Wooding and Watering. | Fortifications and Landing Places. | Trade & ſhipping. |
|---|---|---|---|---|---|---|
| ALGOA, or AGOA,* and ZEVARTKOEPS RIVER & BAY. Arrived 14th Aug. 1797. Sailled 12th September following. | Cape Recife, or *Arrecife*, the ſouth-weſt point of this bay, is low and rocky, and ſeveral dry rocks, high out of the water, appear about the point; but as it is 13 or 14 miles over to the iſlands of *St. Croix*, in the north-eaſt part of the bay, the higheſt of which only appears like a ſaddle, it renders it impoſſible to miſtake the place.—Coming from the weſtward, paſs round Cape Recife, at the diſt. of 1½ mile, as there are ſome reefs of rocks that lay to the South and S. W. about a mile from the ſhore, on which the ſea generally breaks: having brought the cape to bear W. by N or Weſt, you may then haul in, and keep within ½ a mile of the ſhore to the next rocky point carrying 9 to 7 fathoms, rocky bottom; the courſe N. ½ E. but from that point to the anchorage off the landing place, at Baker's River, the courſe is N. N. W. ½ W. 2 miles: the ſoundings regular and clear; ſandy bottom all over the bay, except between the Grand and South Iſles of St. Croix, to the eaſtward of them, where the bottom is foul. The channel between any of theſe iſles is good, and the depth of water is as follows, *viz.* between the N. W. and Grand Iſle, 10 and 12 fathoms: Grand Iſle, and the South Iſle, 5½ fathoms: N. W. and the Main ½ mile, 7 fathoms water.—Ships may be ſheltered to the S. W. of the Grand Iſle, againſt the S. E. winds, and it is an eligible ſituation to clear Cape Recife, when the gale moderates to enable you to carry ſail. This bay is open from N. E. by E. to S. by E. and the wind in any of theſe directions ſets in a great ſwell; but all the inhabitants ſay it never blows ſtrong from the eaſtward, and a ſhip may ride at all ſeaſons of the year. Cape Recife is in lat. 34° 1′ South. and 25° 40′ long. Eaſt. The variation 26° 40′ Weſt. Tide flows 3 h. 20 m full and change; riſes and falls 6 feet perpendicular. Zevartkoeps river bears *by compaſs* N. ½ E. diſtant 10 miles from the Cape, and W. ½ S. from the Grand Iſle of St. Croix 7½ Miles. | You may anchor in any part of the bay, and chuſe your depth of water. The common anchorage, off the landing place, is 6½ or 7 fathoms, ſandy bottom. The mouth of Baker's River W. ½ S. 5-8ths or 3-4ths of a mile, and the outermoſt point S. by E. ½ E.—If at the Iſles of St. Croix, bring the Grand Iſles to bear S. S. E. to S. S. W. half or 5-8ths of a mile, in 10 or 10½ fathoms, ſandy bottom. | Beef and Veal may be had at 2d. per lb. ſheep 7s. 6d. each, vegetables ſcarce. Fiſh, *viz.* Roman Snappers, Groupers, &c. may be caught near the Iſles, and about the reefs of Cape Recife. In Zevartkoeps river are many fiſh to be caught with a ſeine, and oyſters to be picked from the rocks along ſhore. | There appears to be but little wood near the ſea, but I am informed there is very large timber a few miles up the country. There is a good ſpring of freſh water about 100 yards within Baker's River, and about ½ of a mile to the ſouthward is a ſmall run of water called Baker's Fontyn; and with a weſterly wind you may eaſily raft any number of caſks off. | Fortifications there are none. The common landing place is on a ſmall beach cloſe to the northward of Baker's River, the mouth of which is generally cloſed with a dry ſandy bar, and at a favourable opportunity you may paſs through the ſurf into Zevartkoeps River, where it is navigable for a boat 8 or 9 miles up: a little below that the water is freſh. | This bay has not been frequented by veſſels of any deſcription, except thoſe who have put in, from ſtreſs of weather, or to get ſupplied with refreſhments.—The laſt veſſel that called (2 years ſince) was an American, homeward bound from China, having ſprung a leak; ſhe ſtayed two months to repair. Whales abound here in July, Auguſt, and the earlieſt part of September, and as there are vaſt quantities of ſeals on the Iſles of St. Croix, whalers would do well to call here in the ſeaſon. |

* A modern traveller, ſpeaking of this bay, pretends that it is the ſame as Plettemberg Bay. "Governor Blettemberg," ſays he, "travelling in theſe parts, ordered his name to be engraved on a ſtone pillar, with the year and date of his arrival "there.—Since that time AGOA BAY *is known only by the name of* BLETTEMBERG'S BAY. This is only a road very open, "and entering but little into the land; It is ſpacious, and the largeſt ſhips can anchor there ſafely. The boats may land on "a fine beach, without being hindered by the rocks round it, they being all detached from each other. Going up the "coaſt

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## THE COAST, RIVER, AND PORT OF NATAL;

## COAST OF FUMOS,—DA LAGOA BAY,—CAPE CORRENTES, &c.

FROM Cape Padron, the eaſternmoſt point of Algoa Bay, and to which the Dutch ſettlers have given the name of *Point Ekeberg*, the coaſt turns abruptly to the N. E. and continues in that direction for above 182 leagues. On the eaſt ſide of Cape Padron lies Bay Cotant, which is very little known; and 16 or 17 leagues farther up is the mouth of River Infanta, or the Great River, as it is called by the Dutch, the greateſt part of the coaſt, between the Cape and the River, being remarkable by its ſandy downs. Three leagues on this ſide of River Infanta lies, very near the ſhore, a remarkable rock; the Portugueſe diſcoverers have named it the Fountain Rock, and it appears to be that projecting land called *Burtzenhoek* by the Dutch ſettlers.

River Infanta is the ſouthern boundary of the COAST of NATAL, or CHRISTMAS, ſo called becauſe the Portugueſe diſcovered on it Chriſtmas day; thence to the firſt point of Natal, which is remarkable by three ſmall hills above it, the diſtance is about 21 leagues N. E. This Firſt point lies 45 leagues to the S. W. of the laſt point, and between them is another called the Middle Point, which ſeparates the two great bents of the coaſt in that long interval. Port Natal lies 5 leagues N. by E. from the laſt point in 30° latitude South. Nine leagues north-eaſterly from that port, you meet with Fiſhing Point, and 21 leagues farther with Point St. Lucia, both low land, and not ſo eaſily remarked as thoſe we have deſcribed before.

THE RIVER AND PORT OF NATAL is a very extenſive low ground covered with water at high tides, and for the moſt part dry at other times. This place is only fit for ſmall veſſels; the bar is very dangerous, having only 5 feet at low water, and the ſea riſes but 5 feet more, except in the months of September and October, when you will find 12 feet at ſpring tides. The courſe on the bar is to the S. W. the ſwell being very great, but as it is very narrow, two or three ſeas will carry you over; and then you deepen your water to 2, 3, 4, and 5 fathoms. You ought to range the larboard ſide at a ſhip's length, and when you are about one mile within the river, you perceive a barren ground at the declivity of a hill, over againſt which you may anchor in 4 fathoms, at a cable's length from the ſhore; the ſafeſt way is to moor with four cables on the rocks on ſhore. It is high water there at 10 o'clock, at the full and change of the moon.

When you are coming from the northward, River Natal's Point is the more remarkable, as it appears like a hummock cut in the ſhape of a dorado's noſe; and it projects into the

" coaſt one league, you come to the mouth of the *Queur-Boom* (probably the *Zevarthoep's River*,) where you get water. " Refreſhments are to be procured from the inhabitants. The bay abounds with fiſh, and all the rocks are covered with ex- " cellent oyſters. The country round it produces every where an immenſe quantity of good timber, which is of eaſy acceſs, " and can be carried away with the ſame facility, &c. (*Voyage de Monſieur le Vaillant dans l'intérieur de L'Afrique*, 1780—85. T. 1. P. 186, 191 & 192.

It is evident, however, that BLETTEMBERG BAY and AGOA BAY, *are two diſtinct Bays.*

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ſea, forming a cove, where you can anchor with a S. W. wind: you perceive on the land to the S. W. by W. a table mountain, with another of the ſame form under it. At this point there are ſunken rocks, which ſtretch off a $\frac{1}{4}$ of a mile; you leave them on the ſtarboard coming in, and the ſandy point on the larboard; you perceive alſo a mountain about a $\frac{1}{4}$ of a mile to the South of the point. This port was pretty much frequented by Engliſh veſſels in the 17th century.

All the coaſt of Natal is generally huge land near the ſea, intermixed with ſandy ſpots between the rocks and reefs of which it conſiſts. It has no harbour except Port Natal, and none of its rivers can admit large veſſels; but you have deep ſoundings and clear ground all along the coaſt. The inland parts have green mountains covered with many trees, and in the valleys they have found olive trees. The land is fertile; has many inhabitants, plenty of wild and tame cattle, and multitudes of elephants.

The Coast of Fumos, or Coast of Smoke, which ought to be conſidered as a part of the Coaſt of Natal, owes its name to the great quantity of ſmoke perceived there in different parts, by the Portugueſe diſcoverers. It is above 62 leagues in length, from point St. Lucia, juſt mentioned, to Cape St. Mary's, the north Point of Da Lagoa Bay; for about 40 leagues, that is, as far as Cape Fumos, its direction lies towards the N. E. and thence it extends to the North; the whole coaſt being low, with ſandy downs, and not to be ſeen but when you are near it.

Da Lagoa Bay, as the Engliſh call it, is named by the Portugueſe and the other nations, Bay of Lourenço Marques, from the name of its diſcoverer, and alſo Bay of the Holy Ghost; it lies at the entrance of Da Lagoa River, being near 30 miles broad from Eaſt to Weſt, and about 60 miles deep from North to South; but the channel, on account of the ſhallows on both ſides, has not more than 5 miles in breadth. The north Point, or Cape St. Mary's, on the Iſland of the ſame name, and in 26° latitude South, is diſtinguiſhable by its high undulated land; a few miles to the S. E. of it, on the middle of the eaſt Coaſt of St. Mary's Iſland, lies a ſingle hill with white ſpots, and to the ſouthward of this, about 11 miles, is ſeen a high mountain called *Mount Calato*, indicating the northernmoſt extreme of the main land, which is ſeparated from St. Mary's Iſland by a very narrow and rocky channel. This point is ſometimes called Cape St. Mary's, while the true Cape is named Point Unhaca.

There are three principal rivers in this bay, to which they give the names of the Kings who reſide near their entrances; the firſt named Libombo, or Maumbè, and alſo Da Lagoa, and Engliſh River, is ſituated in the north part of the bay; the Portugueſe, and after them the Dutch, had there their chief place of trade, which was carried on in four villages, each governed by a king, *viz.* Libombo, Muſamkwamea, Lakwadonca, and Maniſſee, that lies 30 leagues diſtant from the river's mouth. This river has a bar, on which you find 15 feet water at high tide; the veſſels went up a league farther, and anchored in 4 fathoms near an iſland, upon which they erected huts and bankſals for the time they were to remain there.

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The ſecond River, where the Portugueſe had alſo a factory, is known by the ſeveral names of Mafumo, Manica, and Holy Ghoſt River; it is the moſt conſiderable of the bay; it has no bar, and will admit a ſhip of any ſize. There veſſels generally remain at anchor.

When you are lying in the opening of the bay, in 12 or 13 fathoms water, and Cape St. Mary's to the South 5° W. diſtant about 3 leagues, if then you ſail to the Weſt and W. by N. you will ſee the point of Mafumo River, which appears cleanly cut, and of a reddiſh colour; ſteering for it you have very uneven ſoundings, as 10, 6, 4, and 5 fathoms, with ſome ripplings.

In going into the river you are to come nearer to the ſtarboard than to the larboard ſide, and when about 5 miles within, you drop your anchor in 10 fathoms over againſt a long ſandy point, which lies on the larboard. Either in coming in or going out, you muſt always have two boats a-head, one on the larboard, and the other on the ſtarboard hand, in order to take ſoundings, and give you notice of the depth of water.

The town of Mafumo, which is ſaid to be now deſtroyed, was built on a mountain on the larboard ſide going up, that is, on the ſide oppoſite to that where the ſhip is to anchor. They reckon 4 leagues from the entrance of Mafumo River to that of Libombo, and the courſe is W. S. W.; the former is ſalt water; but 3 miles above the anchoring place, and beyond a point on the larboard ſide, you will find three openings, the middle of which is a freſh water river; going up this river 4 or 5 leagues you may fill your caſks with very good water.

The trade of theſe rivers conſiſts in elephants' teeth, and ſome gold duſt; but you muſt be continually upon your guard, the nations being in general a thieviſh and trayterous race; and the European traders, who have truſted to their good faith, have always been deceived and plundered: ſeveral examples might be quoted, one, among others, of an Engliſh Captain whom the King of Timbo, who lives about 20 miles up the river, had ſeized by ſtratagem, and who was obliged to give 300 pounds weight of copper, and many ſtrings of beads, for his ranſom. They have commonly recourſe to theſe expedients, when they have nothing more to ſell.

In the ſecond voyage which the ſame Captain made to that place in 1709, being about 20 miles up Libombo River, his mate was murdered, and himſelf ſeized and dragged above 30 paces by ſome of the natives; when luckily his coat having been torn off, he eſcaped, and ran back to his boat, from which he fired upon the murderers, and killed ſeveral of them. From this time the Captain never went to trade without having ſeveral armed men by his ſide, and he kept always within muſket-ſhot of his boat, where people were ready to fire in caſe of an attack. It muſt be ſaid, however, that this happened in the upper part of the river, and that the inhabitants are not ſo ferocious near the coaſt.

The third river called Machavana, lies 8 leagues to the South of Mafumo River; it is not navigable for ſhips, but a boat that draws only 6 feet water can go 30 leagues above the entrance, where the trade is carried on; you muſt have with you a native of Mafuma River to give notice of your arrival to the King of Machavana, who lives inland 6 or 7



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leagues from the river, and then comes down with his goods. The fineſt elephants teeth are bought in this place, and the only commodity which the King will receive in exchange, is copper, giving 5 or 6 pounds of ivory for one pound of copper, ſo that 20 pounds weight of this metal will buy a tooth weighing 80 or 100 pounds. The bay as well as the rivers abounds in fiſh of ſeveral ſorts, and have ſome ſea cows. The country near the ſea is very level, but the inland parts are mountainous, covered with ſmall trees and ſhrubs, and full of elephants, tigers, leopards, and wild boars; they have alſo wild aſſes and ſtags, buffaloes which they tame, bulls, cows, ſheep, goats, and the ſame fowls we have in Europe. The beef and goats fleſh are excellent here; the land produces maize, as well as rice, and a ſmall ſpecies of wheat, called *Muſaca*, which is in great repute among the natives, who likewiſe cultivate ſugar-canes, and make uſe of honey. They have ſeveral ſorts of fruits, the principal of which are the pine-apples and water-melons.

From Da Lagoa Bay to Cape Correntes, or the Cape of Currents, the coaſt runs N. E. by E. above 75 leagues; it is very little known, and has ſeveral openings and rivers, the principal of which is Inhampura River, 25 leagues from the Cape.

Cape Correntes lies in 23° 36′ latitude South, and about 36° 45′ Eaſt of London; it is of a moderate height, and it can be ſeen with the adjacent land 9 or 10 leagues off in clear weather.

## DESCRIPTION

### OF THE COAST BETWEEN

### *CAPE CORRENTES* AND *MOZAMBIQUE.*

### CAPE ST. SEBASTIAN,—SOFALA,—ILHAS PRIMEIRAS,—ANGOXA ISLANDS,—MOZAMBIQUE, &c.

FROM Cape Correntes to Inhambané, the coaſt runs to the North 5 or 6° Weſt about 10 leagues. Inhambane' is a river eaſily known by its large opening, the ſouth point being ſteep and of a moderate height, whereas the land is higher at the north point, and makes like a ſaddle.

Thirteen leagues North of Inhambané lies French River, which is ſo ſhallow that no veſſel can enter it; the land to the North of that river is uneven, but ſteep, with ſome thickets, among which you perceive ſands. From French River to Robbers River, which is alſo very ſmall, the coaſt ſtretches to the North 5 or 6° Weſt. This is diſtinguiſhed by a huge land on the north ſide, the whole ſhore being of white and red ſand. Two leagues North of the point, which makes the entrance of Robbers River, there is another point covered with white ſand, and ſcattered clumps of trees, and the coaſt runs in this manner as far as Cape St. Sebaſtian.

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CAPE ST. SEBASTIAN*, which lies in 21° 30′ latitude South, is of a middling height, and very ſteep; when you approach this Cape the land is higher on the ſouth ſide, appearing white and ſandy, and you find no ground near it, but at 2 or 3 miles from the coaſt.

To the North, 5° Eaſt of Cape St. Sebaſtian, are the BAZARUTO ISLANDS, which, as you come from the South, appear united and like a ſingle iſland; the north point of the fartheſt has a reef covered at high water, and lies in 21° 12′ latitude South. Theſe iſlands form a large cove with above 20 fathoms water, in which you lie ſheltered from the weſterly winds; you may wood and water there, but it is not prudent to go between the iſles without having previouſly ordered your boats to ſound.

The PARACEL, or BANK of SOFALA, begins at the Bazaruto Iſlands, and extends as far as thoſe called Primeiras; though you get ſoundings upon it, you cannot ſee the land before you are in 20 fathoms, but there is nothing to fear on this ſhallow, and the decreaſe of depth indicates gradually the approach of land. The prevailing winds on this coaſt, being from South to S. S. E. and the current very ſtrong, the country veſſels frequent Sofala Bank, to anchor upon it in caſe of a calm.

From the Bazaruto Iſlands they reckon about 23 leagues N. W. to SOFALA, whoſe river, having not more than 10 or 12 feet water, admits only ſmall veſſels. Before the fortreſs of the town lies, from North to South, Inhaſato Iſland, between which and the main land two channels are formed by a narrow ſand bank; the deepeſt is on the land ſide, and the ſhips come through it; but, as the bank may ſhift, it is adviſable not to enter without a pilot.

Above 30 leagues to the N. E. of Sofala Bar, in about 19° latitude South, lies LUABO RIVER, which is the firſt mouth of the Great Cuama River; the whole range of the coaſt in that ſpace being a low land near the ſea, with large ſandy plains. From Luabo River, in going towards the N. E. the coaſt is more elevated, with ſome patches of red land; the latter forms a cove appearing like a river, and called *India Cove*; beyond it, in a northerly direction, there is a ſandy plain 4 or 5 leagues in length, which terminates at the S. W. point of Quilimané River.

The entrance of QUILIMANE' RIVER, or the ſecond and chief mouth of the Cuama, is half league broad between the ſouth-weſt point (called alſo Sea Horſe Point), and Point Taugalané, which lies on the North ſide; it is croſſed by a ſand bank that extends along the whole coaſt from Sofala. The courſe of this river is 180 leagues in length; the firſt Portugueſe factory is ſituated on the north ſide of it, 6 leagues above the entrance, and thence to Sena, which is the principal ſettlement: the ſeveral windings of the river make the diſtance above 60 leagues. Quilimané's entrance is very difficult to be known even by the moſt experienced pilots; it lies in 18° 10′, and Sena in 17° 37′ latitude South.

* If the *Neptune Oriental*, which we tranſcribe in this place, be right, it was not Cape St. Sebaſtian that was ſeen by the King's ſhip, *America*, February, 1764, bearing due Weſt 24 leagues. See Mr. *Nichelſon*'s Remarks and Obſervations, page 112, ſecond edition. Mr. *Nichelſon*, in his Appendix, page 5, agrees better with the *Neptune Oriental*. "Cape Sebaſtian," ſays he, "is tolerably high land, about as high as the land of the Start Point in England, and projects but a little way out into the ſea. When you are off this Cape it appears higher land than any other in ſight, either to the northward or ſouthward of it, and has no ſoundings within 3 miles of it. The Coaſt, all hereabouts, is tolerably high land, with a ſteep white ſandy beach, which, at a diſtance, appears like chalk cliffs.



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Twenty-ſix leagues to the N. E. and N. E. by E. of Quilimané's entrance, you meet with *River Quicungo*, where a trade is carried on by the boats of Mozambique. Before this river lies *Fogo* Iſland, or the Iſle of Fire, ſo named from the light-houſe, which, by order of the King of Portugal, was formerly kept there burning from the 1ſt of July to the end of October. Fogo is the firſt of thoſe ſmall iſlands along that coaſt, called ILHAS PRIMEIRAS, or the Firſt Iſlands; a league and a half before you come to Fogo, there is a ſand bank, between which and the iſland you may paſs in 14 or 15 fathoms, taking care to ſail nearer the iſland than the bank. To the E. N. E. of this channel, lie 2 other iſlands, between the firſt of which, named *Trees Iſland*, and Iſle Fogo, there is alſo a bank forming two paſſages, with the ſame depth of 14 and 15 fathoms; and a league further you fall in with *Ilha Raſa*, or Flat Iſland, known likewiſe by the name of Palm-Trees Iſland. Between theſe iſles and the main land there is a paſſage which extends to the E. N. E. through which all veſſels may go, obſerving only to range along the iſlands in ſuch a manner that two-thirds of the breadth of the channel ſhould be left on the land ſide; you have there 10 fathoms water, and no danger but what you can ſee.

Eight leagues to the E. N. E. of flat Iſland lies the bank of *Moma*, and in the interval a reef with many breakers, between which and the bank there is a paſſage, and another with 8 and 10 fathoms water between the bank and the iſland; from this part you can deſcry *Caldeira*, the firſt of the Angoxa Iſlands, in coming from the S. W. About 20 leagues to the E. S. eaſtward of Flat Iſland, a bank is mentioned in ſeveral charts by the name of the Engliſh Bank, which, if not imaginary, is at leaſt very uncertain.

From Flat Iſland to Caldeira, which lies in 17° 40′ South, the courſe is N. E. 25 leagues; the ISLES of ANGOXA, or ANGOSHA, according to the pronunciation, are four in number, with 2 banks of breakers between them. You may paſs among theſe iſlands on the north ſide, whenever you chooſe, in 14 and 15 fathoms; but thoſe that go between them and the main, are to leave two-thirds of the channel on the land ſide, and keep in 8 and 10 fathoms, oozy ground; it is not prudent, however, to paſs there in the night-time.

The laſt of the Angoxa Iſlands is called *Maſamale*, by the author of the *Neptune Oriental*, and MAFAMEDE, by *Van Keulen*, *D'Anville*, and the Portugueſe. This iſland is the only point on the eaſtern coaſt of Africa we are now deſcribing, whoſe ſituation in longitude has been aſcertained with any degree of preciſion. Captain *Joſeph Huddart*, by his obſervations on the 26th of Auguſt, 1784, places Maſamede in 16° 21′ latitude South, and its longitude, *per* Chronometer, in 40° 26′ 7″ Eaſt of London. But, obſerves Mr. *Dalrymple*,* by Mr. *Howe*'s longitude of Bombay, the Error of the Chronometer from St. Helena was at the rate of 2″ *per* day, amounting in 25 days from Maſamede to Bombay, to 50″ or 12′ 30″. This places Maſamede in 40° 38′ 37″ Eaſt of London, which longitude is adopted by that learned gentleman in his Chart of the Indian Ocean.

To the N. W. of Maſamede is Angoxa River, very ſhallow, but frequented by the boats of Mozambique: 7 leagues to the Eaſt of this lies *St. Anthony's Shoal*, bearing E. by N. from

* Memoir of a Chart of the Indian Ocean, page 2.

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the Angoxa Iſlands, and covered at high water; you may paſs within or without this ſhoal, but you are not to go nearer than 7 fathoms toward the land, nor more than 11 in the offing. All the iſlands that have been mentioned are ſmall, and ſurrounded with reefs towards the ſea: none of them is more than half a league in breadth, or above 6 miles round.

Four or 5 leagues from St. Anthony's Shoal, on the Mozambique ſide, and over againſt a place called the *Curraes*, 1 $\frac{1}{2}$ league from the main land, lies a very dangerous rock for large ſhips, and which you cannot ſee but when you are upon it, as the ſea does not break there at high water. To avoid it, you muſt, in coming from the Angoxa Iſlands, ſteer N. E. by E. during the night, and due N. E. in the day-time, keeping in 20 fathoms water.

Fourteen or 15 leagues from this danger towards Mozambique, you deſcry *Mogincale*, which is a huge land, and 2 leagues in the offing lies the ſhoal of the ſame name, on which there are 3 fathoms water, with breakers at low water only, ſpring tides. You will paſs without it at a diſtance of 3 or 4 leagues, if you ſteer E. N. E. and to know when you have doubled the ſhoal, it is neceſſary that ſeveral palm-trees on an iſland called Mafalane-Movya ſhould appear to ſtand on the main land along the ſhore; and to the North of this iſland you ſee a ſandy beach 4 or 5 leagues in length, ending at Bajona-point, which is the ſouth point of Mocambo River; along this beach, known by the name of *Movinxes*, there are trees that reſemble pine-trees when ſeen from the ſea. Between Mogincale and Mocambo River, you may anchor, but you are not to go toward the land at a leſs depth than 15 fathoms. This precaution is neceſſary, on account of another ſhoal half a league in circuit, with 3 $\frac{1}{2}$ fathoms water in ſome places, 5 in others, and ſoft ſtony ground, which is ſaid to lie 3 leagues off at ſea before you come to the point.

They reckon from the laſt Angoxa Iſland to Mogincale point 18 leagues to the N. E.; from Mogincale to Mocamba River 8 leagues, and from Mocambo to Mozambique 4 leagues. *Mocambo River* is one league broad at its mouth, and, with the tide, has water enough for large veſſels to go up 2 or 3 leagues; ſhould you intend to anchor at Bajona Point, you muſt approach the land ſo as to be N. E. and S. W. of the iſlands of St. George and St. Yago, in 15 fathoms, ſandy ground. From the north point of River Mocambo to St. Yago's Iſland, there is a reef on which, at low water, you ſee ſome heads of rocks; this reef is ſteep to, but it is not prudent to come near it.

When you go to Mozambique, you ſail along the coaſt till you ſee the ISLAND of MOÇAMBIQUE, commonly *Mozambique*, which is very ſmall, and not above one league in circuit. It extends from S. W. to N. E. between 2 points of the main land; the ſouth one is called Point Mangale, and Pannoni is the name of the north-eaſt point, off which runs a ſhoal with 3 iſlots upon it. The fortreſs ſtands on the north-eaſt point of the iſland; and to the S. W. of that fortreſs, is the Monaſtery of St. Anthony, which is the mark by which you enter the harbour. On the main land there is a mountain called *the Loaf*, and eaſtward of this another called *the Table*; in coming from the S. W. you ſee theſe two mountains ſeparated from



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each other, the Table appearing to the N. E. of the Loaf; but when you come from the northward, the Loaf is ſeen over the middle of the Table.

Over againſt Mozambique Iſland, about $\frac{1}{2}$ a league at ſea, there are two ſmall low iſlands with ſome clumps of trees; they are ſurrounded with reefs, and lie N. N. E. and S. S. W. from each other; the northernmoſt is called St. George, and the other St. Yago; ſmall veſſels may paſs between theſe iſlands to go to Mozambique, but large ſhips are to go North of St. George's Iſland, between it and the reef that runs off Cabaceira point. In ſailing through this channel, care muſt be taken of the reef which extends to the E. N. E. of St. George's Iſland; and you are not to approach it in leſs than 7 fathoms water. As ſoon as you diſcover the beach that lies on the Weſt of St. George's Iſland, and attending carefully to your lead, you may anchor on the firſt ſandy ground you find; then firing a gun, a pilot will come from the town to carry you in.

## DESCRIPTION OF THE *COAST* OF *AFRICA*, FROM *MOZAMBIQUE* TO THE *EQUINOCTIAL LINE*.

### QUERIMBA ISLANDS,—CAPE DELGADO,—QUILOA,—ZANZIBAR,—MOMBASS,—BAY FORMOSA,—PATTA, &c.

FIVE leagues to the North of Mozambique is a flat ſhore called Quintangone; 7 leagues beyond it lies river Quiſomajugo, and 6 leagues farther the river of Fernao, or Fernand Veloſo, which has a road on the weſt ſide and within the point, with 15, 20, and 25 fathoms water; this is a large river, which you can enter without danger.

They reckon from it 3 leagues to the river of Pinda, off which 1 $\frac{1}{2}$ league from ſhore, is a very dangerous reef with breakers. When you are ſailing along this coaſt it is proper that you ſhould keep at 2 or 3 leagues diſtance. On the main land, over againſt the north point of this reef, it is ſaid there is a very fine Cove, 3 leagues broad, with an iſlot on the north ſide; that ſhips may winter there, lying in good ground, ſheltered from all winds, and find plenty of water, wood, and fiſh.

From Pinda to Camonco River, there are 6 leagues, and 12 from this to Sirancapa or Sinnacapa River: the Bank of Mancabala, which runs about 20 miles parallel to the coaſt, and 2 leagues diſtant from it, begins 6 leagues to the South of the latter river, and ends at its point; between this bank and the main land you have 10, 7, 6, 4, and 3 fathoms water.

The *Picos Fragoſos*, or the Craggy Peaks, begin at Pinda River, and terminate on that of Sirancapa, near which their ruggedneſs is more remarkable; they are the beſt mark you can have for this coaſt.



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From Sirancapa the diſtance is 8 leagues to Pembe River, where the QUERIMBA, or QUERIMBOO ISLANDS begin; they are ſmall and woody. According to Mr. *D'Après*, the firſt is called Quiriba, the ſecond Fumbo, the third Quiluvia, the fourth Querimba, which is the moſt conſiderable, though not above 4 or 5 miles in length, lies in 12° 20′ latitude South; the name of the fifth iſland is Oybo; it is the only one where you find an entrance, all the others being joined by reefs which become dry at low water. The Portugueſe draughts add Matome, or Mattemos, to theſe five iſlands, and between it and the reefs, which lie at its north and ſouth ends, they mark a paſſage with 9 fathoms on the north, and 10 fathoms on the ſouth ſide. In ſailing along you may come very near theſe iſlands, they being ſteep to; and half a league from them you find no ground with the deep ſea line. When you are coaſting along Querimba, you ſee palm-trees on its north point, and a ſandy breach remarkably white, with a large houſe, which ſerves as a fort. You may approach the land, making uſe of your lead, till you diſtinguiſh that fort and the ſandy beach; and when you perceive the ſeparation between Querimba and Oybo, and find yourſelf over againſt the palm-trees and the fort; if it is too late to enter, you may anchor in 12 fathoms on a ſandy bottom, and clean ground. Weighing from this place you ſteer for the weſt point of Oybo, off which runs a reef toward the North, that you are to double in order to come to the anchorage. This is done by going between that reef and the ſouth point of another extending ſouthward of Matemo Iſland, which is ſeen on the north ſide. In this port you are ſheltered from weſterly winds, but fully expoſed to thoſe that come from the Eaſt. Mr. *Alexander Sibbald*, who was on this coaſt about 1753, ſays, "In going to Querimboo endeavour to ſee the northernmoſt ſhoal, which may be ſeen at low water; and if at high water, and you cannot ſee this north ſhoal, the water on it will be diſcoloured. It is high water at full and change at 4 hours:" he adds, "that Querimboo is known by two houſes upon it, and Oybo by a Palmira tree upon it." Obſerve that from Mozambique to Querimba the depth of water is ſuch that you may range the whole coaſt very near by day or by night, chiefly after you have paſſed the reef of Pinda, deſcribed here above.

From the entrance of Oybo to CAPE DELGADO the coaſt runs to the North, ſometimes inclining to the Eaſt, and the diſtance is about 40 leagues. It has ſeveral iſlots and the ſhore in general is bordered with a reef very ſteep to, between which and the land the country veſſels ſail from one place to another. You are not to ſail along this coaſt without an offing of 3 or 4 leagues to avoid ſome rocks and ſhoals that lie ſcattered in that ſpace; beſides the land is low, and you muſt be very near to diſtinguiſh it clearly. The currents near Cape Delgado, and even in the offing, ſet to S. W. at the beginning of the N. E. Monſoon, but near the end they run in a contrary direction.

About 13 leagues to the North of Oybo lies the Bay of MACALOE', between the iſland of that name and the continent; you anchor in the road, which is about 2 miles broad, in 5 and 6 fathoms, mud and ſand, and good holding ground. There are 2 ſmall iſlands before the entrance, in the outermoſt of which is the watering place. The Sultan of Macaloe reſides on the main near the weſternmoſt point, called Point Niatré, and the Portugueſe magazine

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magazine is on the oppoſite ſide on the north point of the great iſland. You take a Pilot to go from the road to Piniany, the Sultan's town, before which you anchor in from 7 and 8, to 18 or 20 fathoms.

From Cape Delgado to the bay of Quiloa, the coaſt turning to the northweſtward, makes a great bight, within which are ſeveral reefs and ſhoals. The town of QUILOA is ſituated at the bottom of the bay on a little iſland 5 or 6 miles long from North to South, and ſurrounded with a reef. There is a good paſſage on each ſide this iſland, with 25 or 30 fathoms water, and alſo good anchorage between the iſland and the main in 5 fathoms on the ſouth, and 15 on the north ſide. The ſoundings in the bay are from 55 to 40 fathoms: it is near 7 leagues broad from North to South, and on its ſouth point ſtands a high moſque. The north point, called in ſome Charts Cape Falſo, is diſtinguiſhed by ſeveral trees growing on a ſandy reef which projects 5 or 6 miles from it to the eaſtward.

Between Cape Delgado and Quiloa, lies the river of MONGALLOO, whoſe entrance, according to a French deſcription, is of difficult acceſs, and not eaſily diſtinguiſhed; at leaſt, unleſs within $\frac{1}{2}$ or $\frac{3}{4}$ of a league, and clear weather. Coming from the northward at this diſtance, three rocks will be perceived appearing like the wreck of a ſhip; bring them to bear S. S. W. *by compaſs* at $\frac{1}{2}$ a league diſtance, and ſteer for them till you get within $\frac{1}{4}$ quarter of a league, keeping a point to the larboard, till you have the bay open; and then ſtand up the channel. The ſoundings are 10 and 12 fathoms, fine ſand. If the wind is contrary, you anchor in the paſs, and warp in. You may lie land-locked, but it will not be in the leaſt dangerous to anchor near the village in 11 fathoms, fine ſand, a little within the north point, and a little to the South of the ſame village.

The Moors are the proprietors of the country, and carry on a great trade, as well in blacks, which they ſend to Quiloa, as in ivory, which they ſell to the Arabs. The blacks are very fine, and at a good price; wood there coſts nothing, but water is got with difficulty.

River *Lindy* lies near Mongalloo about 12 leagues to the W. N. W. of Cape Delgado; its entrance is above 7 miles wide, with 30 fathoms water, and you anchor 6 miles within, in 12 or 13 before a village on the eaſt ſide.

To the North of Quiloa the coaſt is bordered with iſlands, reefs, and ſhoals, ſeveral of which are dry at low water. The principal iſlands are thoſe of MONFIA, ZANZIBAR, and PEMBA. Monfia, 9 or 10 leagues to the northward of Quiloa Bay, is ſurrounded with many ſmall iſlands: 20 leagues farther lies Zanzibar, the largeſt of the three, being above 15 leagues long, 3 or 4 broad, and well inhabited: 23 leagues N. by E. from Zanzibar, you meet with the iſland of Pemba, and to the North of this, going up the coaſt, with the iſle and town of Mombaſs. Quiliſe is 10 leagues beyondit, and Melinda 4 or 5 leagues more to the North. Bay Formoſa lies in 2° 25′ ſouth latitude, and Paté or Patta 10 or 12 leagues farther up. From Patta to the Equinoctial Line the coaſt is lined with a multitude of iſlets and reefs that run above 3 miles into the ſea, forming a double ſhore, which you are apt to take for the coaſt itſelf, when the

ſeparation

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ſeparation is not perceived; in ſome places they lie about one league from the main land, and you can ſee the country boats ſailing within. Since the Arabs have expelled the Portugueſe from all the towns they had on this part of the coaſt, it is little frequented by Europeans. Theſe Arabs are very treacherous, and will ſeize the ſhips whenever they find an opportunity, eſpecially at MOMBASS, in whoſe port they try to allure them. This Port is ſituated in 3° 30′ latitude South, and is in a manner ſhut; by having a narrow and difficult entrance 6 and 8 fathoms deep; it lies all round an iſland 10 miles long and 3 broad, with the fortreſs of Mombaſs, or Mombaze on the ſouth ſide; and above it the Black Town, and the Moors Town, before which you anchor in 6 and 7 fathoms water.

Bay Formoſa, or Fair Bay, as its name implies, lies on the Coaſt of Melinda, and near the town of that name, being 6 or 7 leagues broad, and 4 or 5 deep, with a depth of water from 25 to 10 and 8 fathoms.

PATTA, or PATTE′, according to Captain *D. Crichton*, who was there in 1751, lies in latitude 2° South; it is ſituated at the weſt end of a narrow iſland, 20 miles long, and ſeparated from the continent by a channel about 1 mile in breadth. The land round it is low in moſt places. About 3 leagues off the iſland, and parallel to it, runs a reef with 4 entrances, the middle of which, having been formerly uſed by the Engliſh, is called the *Engliſh Channel*; this is 3 fathoms deep, and narrow, as well as the Portugueſe channel, which lies 4 miles to the weſtward of it: the 2 other entrances are at each end of the reef; the eaſtern one broader than the two firſt, is winding in for above 6 miles, having 3 fathoms water on the bar, and then from 8, 9, 7, 6, 4, and 5, to a good anchoring place at its weſt end; this is very dangerous from April until the latter end of Auguſt. Without it, about 8 miles to the N. E. lies the anchoring place of Guieu in 12 fathoms, ſandy ground, where ſhips come to an anchor, and ſend their boat for a pilot to the iſland 3 miles to the weſtward, before they proceed to Patta.

The weſternmoſt Channel is the wideſt and deepeſt, having from 20 to 13 fathoms water, and above 1 mile in breadth, but the ſwell which ſets from April to Auguſt, hinders any thing from going out through it. Cloſe to the reef you have without from 9 and 10, to 5, and within, near its edge, from 5 to 7, 6, and 5 fathoms water, as far as the anchoring place, that lies 8 miles Weſt from the Engliſh Channel, and above 5 miles ſouthward of the town of Patta. It is high water there, on full and change days, half an hour after 4 o'clock, and the water riſes about 9 feet, at ſpring tides. The variation in 1751, was 16° 17′ Weſt.

DIRECTIONS

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# DIRECTIONS FOR THE CHANNEL OF MOZAMBIQUE,

OR

# THE INNER PASSAGE.

## WESTERN COAST OF MADAGASCAR,—WINDS AND CURRENTS,—BASSAS DE INDIA,—EUROPA ROCKS, &c.

AT the diſtance of about 100, or according to ſome 90 leagues from the Coaſt of Africa, in the narroweſt interval, and of near 150 leagues, at the two extremities, lies the ISLAND of MADAGASCAR; whoſe body extends from S. S. W. to N. N. E. between the parallels of 12° and 25° 36′ of latitude South, in a length of near 300 leagues. The ſea between this iſland and the continent, is known by the name of CHANNEL of MOZAMBIQUE, and the ſouth part of it ſometimes by that of GULF of MADAGASCAR. The navigation to and from India through that narrow ſea has been called the INNER PASSAGE by the Engliſh, though the name is often applied to denote only the Channel of Mozambique.

The weſtern Coaſt of Madagaſcar is little known, St. Auguſtin's Bay being almoſt the only place reſorted to; to the northward of this is Tullear Bay, of 3 or 4 leagues extent, between the main and a reef of rocks, with two entrances, one to the South, another to the North, and 6 or 7 fathoms water. About 60 leagues farther North is Morundava, a bay and harbour, with 4 fathoms water, at the mouth of Youle River, where ſome trade is carried on; Matumbagh, a ſmall trading town, lies on the coaſt 60 leagues North of Morundava; and above 20 leagues N. by E. from it, is Cape St. Andrew's, from whence the coaſt runs E. N. E. about 30 leagues to New Maſſalgem, called alſo Bolena, a good harbour, well ſhut in, and having 10 fathoms water. Then the coaſt takes a N. N. E. direction as far as Cape Natal, or Ambro, the northernmoſt point of Madagaſcar. In that length, which is about 100 leagues, it is indented with ſeveral bays and harbours very little known.

Two Monſoons, or Seaſons, are known in the Mozambique Channel; the S. W. Monſoon, which, beginning in April, continues till November, and the N. E. Monſoon that follows it, and laſts until the month of April. During the S. W. monſoon, which is the fair ſeaſon, the winds blow from the S. W.—S. E., as well as from the E. S. E. moderate and without violence; and along the coaſt you have land breezes. If ſtorms happen, then they come from the N. N. W., Weſt, and N. W. but though it blows very freſh, they do not laſt long. Off the coaſt you meet ſometimes with winds from the north quarter. The currents in this ſeaſon run towards the South, along Madagaſcar; they ſometimes, but rarely, ſet towards the North.

The N. E. Monſoon begins to be felt in the firſt days of November to the North of Madagaſcar, as well as near the Comoro Iſlands; but towards St. Auguſtin's Bay it commences only at the end of the month. This bay is dangerous in that ſeaſon, becauſe the winds,

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winds, which come frequently from the North and N. W. blow directly into it and make there a great ſwell.

The ſame N. E. monſoon extends rarely further South than St. Auguſtin's Bay, and this happens only accidentally, and when the diſpoſition of the weather foretels a ſtorm. The S. E. winds prevail in the South part of Madagaſcar during the whole year. At the end of November, in December, January, and February, this wind blows very ſtrong, and when it veers to the South, or S. W. it is accompanied with rain.

It is chiefly during the N. E. monſoon that the moſt violent ſtorms ariſe: when the S. E. and S. W. winds, which prevail without, are ſtrong and turn to the North, they meet with the N. E. and N. W. winds, violent whirls and hurricanes are then produced by their mutual ſhock, the ſky is overclouded, the rain heavy, and the ſea much ſwelled and agitated. During this monſoon the currents in the Mozambique channel ſet towards the South all along the African Coaſt, and even in the offing, their common velocity being 7 or 8 leagues in 24 hours; but on the coaſt of Madagaſcar their run is on the contrary way, and they ſet towards the North.

Ships which are bound to the Inner Paſſage, after they have doubled the Cape of Good Hope, and aſcertained their poſition, either by the ſight of land, ſounding on the Bank of Lagullas, or by a good obſervation, are to continue an eaſterly courſe, and not to leave the 35th or 36th parallel of latitude before they come as far as the 34th or 35th degree of longitude Eaſt of London; or till they have increaſed their variation to 25 or 26° 10′*. They then ſteer Eaſt *by compaſs* till they are in the 37th degree of longitude, not under the 35th parellel of latitude. Hereabout the ſtrong weſterly and north-weſterly winds begin to moderate; they become variable, being frequently from the S. S. W. and ſometimes from the S. E. Thence having ſteered E. by N. or E. N. E. until the 39° of longitude, veſſels ſhape their courſe ſo as to make 41° of longitude, in 28° of latitude; and afterwards ſailing North as far as the 25° of latitude, they haul in for the land of Madagaſcar, and make it in between 24° 20′ and 23° 40′ which is a part of the coaſt pretty clear, being low near the ſea, but riſing gradually inland to a tolerable height; it may be deſcried from the maſt-head at 9 or 10 leagues, and from the deck at 6 leagues diſtance.

The reaſon for keeping ſo far to the eaſtward, eſpecially in May, is to avoid the light winds, calms, &c. on the African ſhore, very common at that time; beſides the currents run very ſtrong ſoutherly the nearer you are inſhore; and later in the year, it is alſo very common, from 30° South, to the ſouth end of Madagaſcar, to meet with winds from Eaſt to S. E. and this ſometimes, to timorous men, occaſions much delay, as they do not chooſe to paſs the Baſſas de India, before they make the land, which, in our opinion, is over cautious. When the wind is eaſterly, obſerve only to paſs from 22° 40′ to 21° 20′ latitude in day light, if poſſible; it includes the latitudes of the Baſſas de India, and the Europa Rocks. When paſt them, ſteer along ſhore all night, and inſhore all day, until, by lunar obſervation, you make 42° longitude; then a north courſe until under 17° 50′, afterwards a N. E.

* In 1784, the variation was 24° 48′ Weſt, in latitude 25° 10′ South, and longitude 38° 50′ Eaſt of London.



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courſe will carry you on the Pracel Bank in latitude from 17° 40′ to 17° 20′: It is preferable to get ſoundings on this part of the bank, becauſe they are more regular. Should you get them to the ſouthward, you ought to haul off N. W. by N. until you loſe them, and then keep a courſe North, as far as about 16° latitude. Afterwards you are to ſteer ſo as to make 2° eaſting; by the time you come into 12° 55′ you will make Mayotta N. N. E. It is neceſſary, in the early, or late part of the year, to keep to the eaſtward, if you mean to go into Johanna, as the currents ſet to the weſtward; but in the height of the monſoon it is needleſs.

In approaching Madagaſcar you muſt not come during the night in the parallel of the ſouth part of this iſland, that is, in 25° 36′ latitude, for fear, in caſe of an unforeſeen error towards the Eaſt, of meeting with the coaſt between Cape St. Mary and the Star Bank. You get ſoundings 8 or 9 leagues in the offing from 40 to 25 fathoms, ſand and gravel. Four or 5 leagues to the South of Cape St. Mary's, there are ſome breakers which have been ſeen by the ſhip *Barker*, June 13th, 1780: the channel between them and the Cape is clear, and has 20 fathoms water.

The STAR BANK lies 24 leagues W. N. W. from Cape St. Mary's; it is above 10 leagues long, ſteep to on the weſt ſide, and leſs than a mile from the rocks, you have from 80 to 90 fathoms water: ſeveral ſhips have paſſed between it and the land, the paſſage being 3 leagues broad, and there is no danger if you keep in mid-channel. To the N. W. of this bank are 2 ſmall detached iſlands, lately ſeen by Monſ. *De Kerilvay*, which, according to this officer, lie in about 24° 55′, and are ſurrounded with rocks and breakers.

The coaſt from the latitude of 24° 20′, mentioned above, to St. Auguſtin's Bay, lies N. by W. and S. by E. with a reef parallel to the ſhore, at 2 or 3 miles diſtance: upon which the ſea breaks in moſt places, but it is very ſmooth within.

You are to ſail along the coaſt, and 2 leagues from it, until you raiſe SANDY ISLAND, a ſmall low iſland at the entrance of St. Auguſtin's Bay to the S. W. with ſome ſhrubs, and a very white ſandy beach; a ledge of rocks lies S. W. from it above 2 miles in length, with foul ground, and breakers all round; you muſt ſail to the northward of the iſland, and borrow upon it, to avoid the ſhoals on the north ſide of St. Auguſtin's Bay. But before you come to Sandy Iſland you will ſee the land about St. Auguſtin's Bay, which is pretty high near the ſea, but much higher at ſome diſtance inland; and you diſtinguiſh a table hill on the north ſide of the Bay at a great diſtance in the country, which has been called *Weſtminſter-Hall*, from its reſemblance to the roof of that building.

The BASSAS DE INDIA* a moſt dangerous ſhoal, are very low land, in length about 10 or 12 miles, and near 5 or 6 in breadth; they are ſurrounded with a ſandy beach, rocks, and breakers in every part; the trees that grow upon them are not higher than a high Catamaran under ſail, with which ſeveral parts of theſe have ſome reſemblance; there are 2

* Theſe ſhoals were named by the Portugueſe diſcoverers, *Baxos da Judia*, or the "Banks of the Jeweſs; they are ſtill called ſo by that nation, as well as by all the European navigators, except thoſe of our country, where the firſt Charts of theſe parts copied from the Portugueſe, having changed the letter *u* into an *n*, ſubſtituted the word *India*, for that of *Judia*.

or

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or 3 ſmall hummocks on their northernmoſt end, but the ſhoal cannot be ſeen above 5 or 6 miles from a ſhip's deck, or above 9 or 10 miles from the maſt-head; you have no ſoundings within 3 miles of them.

To the N. W. above 26 leagues off theſe rocks, lie ſome others, ſometimes miſtaken for the Baſſas de India, which are called EUROPA ROCKS, having been firſt ſeen by the ſhip of that name, in whoſe Journal we find them mentioned as follows; "December the 24th, 1774, ſaw ſome rocks from the poop, bearing S. W. by S. to S. E. by S. diſtance 2 or 3 leagues, their latitude in 21° 28′, and 5′ Eaſt of Mozambique, the biggeſt about the ſize of a long-boat, and the ſea breaking over them at all times, which makes it a very dangerous reef*. On the 25th ſaw the Baſſas de India†, North 39° 23′ Weſt, diſtance 80 miles.

"Baſſas de India { Latitude 22° 30′ South. Longitude, ſuppoſed, 41° 40′ Eaſt of Greenwich.

"Variation 22° Weſt."

About 35 leagues to the eaſtward of the Europa Rocks, 24 N. E. of the Baſſas de India, and above 20 leagues from the Coaſt of Madagaſcar, lies the SUSSEX ROCK‡, named after the ſhip of that name, by which it was diſcovered.

* The BASSAS DE JUDIA of *Nichelſon*, and the EUROPA ROCKS, according to a very experienced Commander, muſt be the ſame ſhoal; they were ſeen by the *Royal Admiral* the 23d of Auguſt, 1784, and nothing was perceived above water, except ſcattered rocks like hay-ricks, though probably ſome part of the flat may dry at low water, and at the extremity the ſea breaks heavy all round. Captain *Huddart* ſent his pinnace cloſe to the back of the ſurf, which ſailed round the ſouth and weſt ſides in from 3 to 12 fathoms, within 20 or 30 yards of the breakers, while the ſhip kept from about a mile to 1½ mile off the breakers, and had no ſoundings from 40 to 70 fathoms, for an extent of 14 miles on the ſaid ſouth and weſt ſides; but could not aſcertain how far it might extend to the eaſtward. The part viſible extended from E. S. E. to W. S. W. 13 miles, and from N. N. E. to S. S. W. 6 miles. The northernmoſt extreme is in latitude 21° 28′ South, and the weſternmoſt, *per* mean of 12 obſervations of the moon, 40° 8′ Eaſt of London, and by chronometer 39° 58′. Colonel *Harper* went in the pinnace with hooks and lines, and caught a large quantity of fiſh, which were found very good.

"On the 26th the *Royal Admiral* made the northernmoſt of the ſmall iſlands on the Coaſt of Angoxa, in latitude 16° 21′½ South, and by chronometer in 22′½ longitude Eaſt of the above ſhoal.

"The *Royal Admiral* had ſoundings on St. Anthony's Shoal in 13 fathoms, 10½ leagues North, 36° Eaſt, true courſe, or North 56° *per compaſs*, and 2 leagues from the ſhore. By the Chart, the above iſland appears to lie 20 leagues to the weſtward of Mozambique, therefore the ſhoal muſt be near 30 leagues to the weſtward of Mozambique.

"The *Europa* agrees in latitude, but differs widely in meridian diſtance; indeed the currents are often ſtrong in this part of the channel; for between the ſhoal and the iſland theſe currents ſet the *Royal Admiral* 51 miles to the weſtward in 3 days.

"The variation at the Baſſas de India, or the above ſhoal, was 23° 50′, and at the iſland 20° 40′ Weſt."

† This muſt mean the Rocks, or *Nichelſon's* Baſſas de India, ſeen the 24th.

‡ Probably this rock is one of thoſe which are deſcribed in the above notes.



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# INSTRUCTIONS

FOR SAILING INTO

# *ST. AUGUSTIN'S BAY,*

AND THENCE TO THE COMORO ISLANDS.

## CHESTERFIELD SHOAL,—ST. CHRISTOPHER'S, JOHN DE NOVA, AND COFFIN ISLANDS, &c.—SHOALS SEEN BY CAPTAIN *JAMES URMSTON* AND CAPTAIN *JOHN HALL.*

ST. AUGUSTIN'S BAY lies almoſt under the Tropic of Capricorn, in 23° 34′ latitude South, and 44° 13′ eaſt longitude from London, according to the obſervations of the Hon. *Thomas Howe.* Captain *Hall* of the *Worceſter*, places it 43° 20′ Eaſt of London.

Having paſſed Sandy Iſland in 15 or 13 fathoms water, and ſteering to the eaſtward, you will ſee a high land cloſe to the ſea, on the ſouth ſide of the bay, and another high land at ſome diſtance in the country; the entrance of River Onglahé, which the Engliſh have named *Dartmouth River*, being then open to you, it will ſerve as a leading mark to run up and clear the reef, as well as all danger. The north point of this river is a ſteep bluff, and the ſouth one, which is alſo ſteep, has a low woody point running out to the northward; you keep the high bluff point a ſail's breadth open with the low woody point, then it will bear E. ¼ S.

As you run to the eaſtward, after have loſt ſoundings from Sandy Iſland, you will have none till you come off the firſt low point on the ſouthern ſhore. Off this there is a ſmall ſhoal of breakers with 9 and 10 fathoms cloſe to them, and 14 and 15 fathoms 2 cables length without; it deepens gradually from 14 to 28 fathoms, ¾ of a mile to the northward of this point, and then no ſoundings; obſerve that the leading mark muſt be kept a ſail's breadth open in paſſing theſe breakers, which you ſhould do in 14 or 15 fathoms.

There is good anchoring in, from 18 to 20 fathoms, the *Tent Rock* on the ſouth ſhore bearing from S. ¼ E. to S. ¼ W.; the other mark, as follows; *viz.* at ſome diſtance from the low woody point the land riſes up to a ſteep bluff, ſomething like that on the north ſide, but much higher; if you bring thoſe 2 bluffs in one, or touching, or even a little ſhut in, and the Tent Rock, from S. ¼ E. to S. ¼ W., it is a very good place to lie in; with theſe bearings you will have from 10 to 12 fathoms water, and a very ſafe birth, with good holding ground, clay and mud.

Here you ſhould moor Eaſt and Weſt that you may ride between the two, and with an open hawſe when the wind comes to the northward and blows hard, which ſometimes happens; ſhould you moor North and South, in ſome places, your outer anchor would lie in very deep water.

No ſhip ſhould let go her anchor in more than 15 or 16 fathoms, unleſs it is with the Tent Rock, bearing S. ¼ Eaſt, and then in not more than 18 or 20 fathoms; for the bank in moſt places goes off very ſuddenly from 20 to 24 fathoms to no ſoundings. The Tent Rock,

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Rock, bearing from S. ½ E. to S. ½ W. in from 8 to 12 fathoms water, as ſaid above, is the beſt place for a ſhip to lie in, ſince there is good ground and moſt drift.

In St. Auguſtin's Bay, you may get wood and water at the mouth of the river, where there is a bar with only 2 feet at low tide; you get alſo plenty of good beef, mutton, and fowls, only vegetables are very ſcarce. The inhabitants are hoſpitable, but artful and prone to revenge.—It flows here at full and change 2 hours 15 minutes, and the perpendicular riſe is 8 feet on ſpring tides.

When you ſail from St. Auguſtin's Bay to India, you generally run to the weſtward, and make about 50′ or 52′ weſt longitude from Sandy Iſland, and then ſhape your courſe due North, until under 17° 50′, after which, as we have already obſerved, a N. E. courſe *by compaſs* will carry you on the PRACEL BANK, which extends all along that part of Madagaſcar, between the 18th and 16th parallels of latitude. On this bank the ſoundings are very uneven, but keeping in 20 fathoms, is a good depth until you loſe them; you then proceed according to the directions given in the preceding ſection; with that courſe you avoid the Suſſex Rock, and ST. CHRISTOPHER'S ISLAND, a ſmall low ſandy iſland, with a few breakers round it, in 17° latitude, and 14 leagues diſtance from the Coaſt of Madagaſcar, whoſe deſcription we find in the Journal of the *Portfield* June 3d, 1755, as follows: "The Iſland of St. Criſtopher is very low, with ſome trees on the northernmoſt part of it: the north-weſt part is a large ſandy beach, which looks very white; but when you are at a great diſtance from it, it appears like chalk cliffs, which I ſuppoſe to be ſand blown upon the land: to the northward are breakers that run out above 2 miles from the iſland. I think thoſe who come this way, in prudence ſhould lie to for the ſaid iſland, though they have made Madagaſcar, for it is ſo low, that I believe in the cleareſt weather it cannot be ſeen a mile off in the night."

By making your courſe N. E. when in latitude 16° 40′ South, and longitude made from Sandy Iſland about 25′; you avoid likewiſe that dangerous ſhoal called CHESTERFIELD SHOAL, which was ſeen in Auguſt, 1756, by the *Cheſterfield* Indiaman, in company with the *Walpole* and *Hector*. This lies in 16° 13′ latitude, and about 25′ or 30′ Weſt of the meridian of Sandy Iſland, being thus deſcribed in the *Cheſterfield's* Log-book:

At 5 A. M. ſaw breakers from the maſt-head right a-head of us; hauled our wind in order to go to the weſtward of them, though I perceived the paſſage to the eaſtward: the *Walpole* and *Hector* did the ſame, and I believe were nearer to them than we, though we were not half a cable's length from the White-heads. This ſhoal appears to be a mile long, and ½ a mile broad, and lies near Eaſt and Weſt; there is on it a ſmall rock which is dry, and a little to the eaſtward of that rock, a patch of reddiſh ſand that is dry alſo, againſt which the ſea broke furiouſly, though moderate weather; and there was a confuſed ſea where the ſhip went through."

Theſe ſhips had 30 fathoms water when they firſt ſaw the ſhoal, and were ſteering N. E. The breakers being right a-head of them; they had then 19, 20, 10 ½, 7, and 6 fathoms; and in this latter depth, paſſed within half a cable's length of the breakers, after which they had 7 ½, 12, and 20 fathoms, 2 or 3 leagues to the weſtward of the ſhoal, and then no ground at 40 fathoms. They

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They were at noon in 15° 59′ latitudes South, by obſervation; and the longitude made from Weſtminſter-Hall, was 58′ Weſt; they found a northerly current which ſet the ſhip 12 miles to the northward of the reckoning. In working their courſe and diſtance from 5 A. M. to noon, with a proper allowance for the north current, the firſt will be made Weſt 36° North, and the diſtance 24 miles from the breakers on the ſhoal, by which the ſhoal appears to lie in 16° 13′ latitude South, and 38′ longitude Weſt from Weſtminſter-Hall.

The ſame ſhip ſaw the evening before at 6 P. M. St. Chriſtopher's Iſland bearing Eaſt, and 2 or 3 leagues diſtant. In working likewiſe their courſe and diſtance from that iſland, with the bearings from it, at 6 P. M. and allowing for the northerly current; the ſhoal they diſcovered, and which is now called CHESTERFIELD SHOAL, lies 24 leagues N. 5° E. from St. Chriſtopher's

About 25 leagues W. by S. from St. Chriſtopher's, in 17° 15′ latitude South, and 1° 28′ Weſt from the meridian of Johanna, lies the ſmall Iſland of JOHN DE NOVA; it was ſeen June 27th, 1740, and June 7th, 1769, by the French ſhips *La Paix*, and *le Marquis de Sancé*, the former having got, at the diſtance of 10 leagues S. by E. from it, uneven ſoundings from 7 to 15, 20, and 30 fathoms water. This iſland, about 3 miles long from North to South, riſes a little in the middle, where it is covered with ſhrubs; on the ſouth ſide there are breakers, which run off 2 miles; with a black rock at the end 10 or 11 feet high; but towards the North they extend farther than 1 mile, and are remarkable by a ſmall white rock, which being 2 or 3 miles diſtant, appear like a ſhip under ſail.

The longitude made from Sandy Iſland to the latitude 16° or 16° 20′ South, ſhould not be more than 12′ Weſt, and the variation 20° Weſt. From this latitude you may make your longitude eaſterly, ſo that in about 13° 12′ South, you ſhould come to about 52′ longitude Eaſt from Sandy Iſland, with a variation of 19° 30′ Weſt, in which latitude, longitude, and variation, if the weather be clear, you will ſee the remarkable hill, called *Valentine's Peak*, that lies on the ſouth ſide of Mayotta, the ſouthernmoſt of the Comoro Iſlands; it will then bear about Eaſt from you 8 or 9 leagues diſtant.

Hereabout you meet with a ſtrong ſoutherly current, which will ſet the ſhip from 20 to 24 miles to the ſouthward in 24 hours; make your courſe N. N. E. 4 or 5 leagues, and the iſland Johanna will be perceived bearing about N. N. E. ½ E. 11 or 12 leagues diſtant; it is much higher land than Mayotta, or Mohilla, and diſtinguiſhed by a very high peak in the middle: then Mayotta will bear E. by S.

Steer then for the weſt part of Johanna, and you will ſoon deſcry Mohilla to the N. W. Ships always go between Johanna and Mohilla, within 2 or 3 miles of the weſt part of the former; but if by ſome unforeſeen current they ſhould be carried on the eaſt ſide of Mayotta, they muſt take care of a reef lying to the E. N. E. 4 or 5 leagues off, and whoſe bearings have been obſerved as follows: *viz.* When the north point of Mayotta was bearing N. W. by N. *by compaſs*, and the ſouth point S. W. by W. 6 or 7 leagues, then the reef bore N. W. by W. diſtant 2 leagues.



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REMARKS on a SHOAL on which the TAUNTON-CASTLE, *James Urmſton* Commander, grounded in the *Mozambique* Channel.

| Courſe. | D. | N. E. | MD. | Lat. P. | X. Lo. | Lo. in Bearing and Diſtance. |
|---|---|---|---|---|---|---|
| N. 34 E. | 66 | 55 \| 37 | 34 \| 14 | 18 00 | 39 | 41 42 \| Eaſt. |

| H. | Courſes. | K. | F. | Winds, &c. |
|---|---|---|---|---|
| 1 | N. N. E. | 4 | | E. by S. light air and fair. |
| 2 | | 3 | 2 | Variable. |
| 3 | North. | 2 | | |
| 4 | N. by W. | 2 | | Tacked. |
| 5 | Eaſt. | 2 | | N. by E. per Azth. 20 26 } W. |
| 6 | | 1 | 6 | 20 46 } W. |
| 7 | E. N. E. | 2 | 4 | Per Amplitude, 20 56 } W. |
| 8 | | 2 | 5 | N. by W. |
| 9 | | 3 | | N. N. W. |
| 10 | | 2 | 6 | |
| 11 | | 3 | 4 | W. N. W. |
| 12 | | 3 | | W. by S. Cloudy. |
| 1 | | 2 | 2 | |
| 2 | | 2 | | |
| 3 | | 2 | | S. S. E. |
| 4 | | 2 | 4 | |
| 5 | | 3 | | |
| 6 | N. E. | 3 | 4 | Saw the land bearing E. N. E. |
| 7 | N. E. ½ N. | 5 | | from the maſt-head. |
| 8 | N. N. E. | 5 | 3 | |
| 9 | N. E. by N. | 5 | | When on ſhore, the Iſland |
| 10 | } | | | bore E. N. E. diſt. 5 miles, ſand |
| 11 | } | | | bank N. N. E. diſt. 6 miles. |
| 12 | } | | | |
| | | 63 | | Miles. |

Monday 18th April, 1791.

Light breezes, with hot ſultry weather. At 9, A. M. perceived the water diſcoloured, went to heave the ſhip to, to ſound. She ſtruck in ½3 fathoms, on hard ſand and coral; tried to heave her in ſtays but without effect. Handed ſails and got the boats out and ſounded; laid a warp out to the S. W. in 8 fathoms; hove taught, and obſerved the water to riſe; the ſhip ſwang to the hawſe at ½ paſt 11, and by noon hove her into 12 fathoms water, without receiving any material damage.

Latitude, per double altitude, 17° 16′ South.

| X. Lo. | Lo. in | Bearing and diſtance. |
|---|---|---|

MONDAY 18 April, 1791. During theſe 24 hours hot, ſultry weather, with light winds. From our chronometer and reckoning, expecting to make the iſland of St. Chriſtopher's, kept a good look out, but during the night the wind coming from the eaſtward found it neceſſary to tack; the wind veering round to the northward, ſhe laid up Eaſt and E. N. E. which was the courſe we intended to ſteer for the purpoſe of making the land at paſt 6, A. M. ſaw the land from the maſt-head, bearing E. N. E. 6 leagues, ſomething like a ſail; the rate of the ſhip's going was at that time about 4 miles *per* hour, the water remarkably ſmooth. At 8, A. M. the latitude worked up, per account, was 17° 26′ South; longitude, per account, 42° 11′; eaſt longitude worked up from our chronometer, ſince the laſt noon, 43° 03′; by a ſeries of good ſights, per ☉ and ☾ brought forward from Wedneſday, 13th April 1791. 42° 36′ eaſt longitude brought forward from the mean of 6 ſights, per moon and Antares. At 9 P. M. 44° 07′ Eaſt; meridian diſtance Eaſt of Trinidada 57° 58′. At ½ paſt 8 A. M. perceived the water much diſcoloured; hove to, to ſound, but in the act of heaving to, the ſhip ſtruck and grounded on a bed of coral; every effort was uſed to caſt her off, but without effect.

A ſmall low iſland bearing E. N. E. a ſmall ſand-bank N. N. E. diſtant about 2 or 3 miles, diſtant from the ſmall iſland about 3 miles. Immediately furled all our ſails, and got the boats

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boats out; ſent the cutter and jolly-boat to ſound round the ſhip, found deep water in the ſouth-weſt quarter, but to the north-weſt the water was very ſhoal, ſo ſhoal, the boat had like to have grounded; to the ſouthward found a ½ leſs 4 fathoms; got the kedge and nine inch hawſer into the long-boat, and carried it to the ſouth-weſt quarter, having previouſly laid a buoy in 8 fathoms water, as a guide for the ſhip; hove her off into deep water; providentially the water proved remarkably fine, and we were happy in getting off without any material damage happening to the ſhip. I obſerved at the time of the long-boat's being carried out, a ſtrong N. E. current, and have much reaſon to ſuppoſe that the flux and reflux of the ſea here is conſiderable, for at the time of her grounding the ſmall ſand-bank which bore N. N. E. was hardly diſcernible from the maſt-head when ſhe came a-float. The ſhip came afloat about noon, and the confuſion which ſuch a circumſtance would naturally throw us into, had made us neglect taking a meridian altitude, but we had a latitude by a double altitude, which made 17° 6′ South. At 2ʰ. 20ᵐ., paſt meridian, we had ſome ſights, per chronometer, which made in the longitude of 41° 56′ Eaſt; we were at this time riding our kedge in 12 fathoms water. The iſland bore E. S. E. diſtant about 3 or 4 miles. A high peak on Madagaſcar extending to the ſouthward extremes of it from S. E. by S. ½ S. and diſtant about 12 leagues. At ½ paſt 4 P. M. weighed the kedge, and ſtood away South, and S. by W. with regular ſoundings from 12 to 15 fathoms, when we came to with the ſmall bower. The iſland bore N. by E. diſtant about 11 or 12 miles. The extremes of Madagaſcar, from the maſt head from N. E. ½ E. to S. S. E. diſtant about 10 or 12 leagues, in 13 fathoms, mud and ſand; the ſame bearings from the poop at noon. At 9 A. M. ſent the cutter to ſound, with the ſecond officer upon duty. Here follows the report he made of the channel:

After clearing the ſhip we ſteered Eaſt, the ſhip then bore about W. by S. diſtant about a ½ of a mile; hove a caſt of lead, 12 fathoms; the ſhip bore W. S. W. we were then going at the rate of 3ᵏ. 4ᵗ. per hour, ſounded 12 fathoms; the ſhip bore S. W. ½ W., the peak on Madagaſcar bearing E. by S. The extremes of the land from S. E. by E. to E. by S. At ½ paſt 9 A. M. diſtant from the ſhip about a mile, the iſland N. ½ W. diſtant 4 leagues, ſounded 12 fathoms; the ſhip bore S. W. about 1 ½ mile; extremes of the land to the ſouthward Eaſt to E. S. E. ſounded 10 ½ fathoms, the ſhip S. W. by W. about 1 ½ mile. The iſland N. by W. ½ W. diſtant about 4 leagues. The peak E. by S. ſounded 10 fathoms. The ſhip S. W. ½ W. diſtant about 2 miles, ſounded 9 fathoms. The ſhip S. W. ½ W. diſtant 3 miles. At 10 A. M. ſounded 7 ½ fathoms. The ſhip S. W. ½ W. The iſland N. N. W. ½ W. The extremes of the iſland of Madagaſcar from S. E. to N. E. by E. diſtant from the ſhip about 3 ½ miles, ſounded 8 fathoms. The ſhip S. W. by W. the bottom hitherto ſeemed ſandy, ſounded 7 fathoms. The ſhip W. S. W. the low land from E. S. E to N. E. diſtance about 1 ½ mile, ſeveral caſts of lead all 7 fathoms; deepened our water from 7 fathoms to ½ 7; running in for the land, pretty regular ſoundings from ½ leſs 8 to 7 fathoms for about 1 ½ mile; the ſhip bore W. S. W. 4 ½ miles: kept ſtanding in for the land, the ſoundings ſtill continued the ſame from 7 to 7 ½. The iſland N. W. by N. diſtance about 3 leagues, ſandy bottom all the way; ſhoaled water ½ leſs 7 fathoms

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fathoms hauled off N. N. E. had 7 fathoms, the ſhip W. S. W. diſtant about 6 miles, pretty regular ſoundings from 7 fathoms, to 7 ½, ſandy bottom; ſounded 7 fathoms, ſoft bottom; 7 ½ blue mud; 7 ½ ſoft bottom; 7 ½ ſtiff ground. The ſhip S. W. ½ W. 7 ½ ſoft bottom; regular ſoundings from 7½ to 7 fathoms, ſoft bottom. Steering along ſhore N. by E. ſtill continue our regular ſoundings from 7 to 7 ½, ſoft ground, the ſhip W. S. W. diſtant about 8 miles, ½ 7 fathoms, ſoft ground about mid-channel. The channel N. W. by N. extremes of the low land from E. N. E. to S. E. by S. diſtant off the low land about 1 ½ mile; the ſhip W. S. W.; ſoundings ½ 7 fathoms, ſoft ground. At the time of the taking of the bearings in mid-channel, it wanted a ½ of eleven A. M. from our grounding yeſterday, ſuppoſe it muſt be low water. Still continue our ſoundings of ½ 7 to 7 fathoms, ſoft ground. The ſhip bears S. W. by W. diſtant 9 miles, thick water, with a quantity of weed, 7 fathoms, ſoft ground. The ſhip S. W. ½ W. the iſland N. W. extremes of Madagaſcar from E. N. E. to S. E. by E. going at the rate of 5ᵏ per hour, ſhoaled 6 ½ fathoms, ſoft ground; hauled off from the iſland N. W. ½ W. 5 ½ fathoms, ſand. Steered North, found our water ſhoal as we hauled in for Madagaſcar, 5 fathoms, ſand; the iſland N. W. ½ W. 5 fathoms, deepened as we hauled to the iſland 6 fathoms, ½ 5 fathoms, hard ground. Steered N. N. W. ſounded 3 ½ fathoms; bore up N. N. E. 4 fathoms, ½ 4 fathoms; hauled up N. E ½ leſs 4 fathoms, ſandy bottom, 4 ½, the ſhip S. W. ½, 4 fathoms; found our water ſhoal, kept ſteering N. E. by E. 4 ½ fathoms, ſandy bottom. Deepened to 5 fathoms; deepened from 6 ½ to 7 ½ fathoms, ſoft ground; hauled up E. N. E. 7 fathoms, ſoft ground. Still continue the ſame ſoundings, having got into deep water again; hauled away N. E. by E. ſhoaled to 6 ½ fathoms, the iſland W. N. W. 6 fathoms, ſoft ground, 5 ½ fathoms, ſteered E. N. E. 5 ½ fathoms, had a meridian altitude 17° 28′ South, the ſhip bore S. W. diſtant 10 miles, found a ſtrong N. E. current, which obliged us to come to an anchor."

In examining ſome Journals, and from the difference of our ſoundings, with thoſe which are laid down in the Charts, we find this iſland cannot be St. Chriſtopher's, but muſt be COFFIN ISLAND, on the ſame parallel of latitude, but 1 ½ degree to the eaſtward of St. Chriſtopher's. Having ſight for the longitude per ☉ and ☾. So late as Wedneſday the 13th inſtant, the watch agreeing with thoſe ſights, it made us not place that degree of confidence in the obſervation per moon and Antares, which we had 12 hours before we ſtruck, and work up to 8 A. M. made 44° 07′ Eaſt of Greenwich. We find thoſe ſights muſt have been very good, as the bank we have ſounded along muſt be the ſame which is mentioned in the Charts to have very irregular ſoundings, and many dangerous places. We are convinced there is a channel in the mid-way, between Coffin Iſland and Madagaſcar; for while we continued in the boat, in the mid-channel, we found very regular ſoundings from 7 to ½ 5 fathoms, but bordering any nearer either of the iſlands, found very ſhoal water: a courſe of E. S. E. with the precaution of a boat a-head, I think might carry the ſhip through clear of all dangers.

While at anchor, the ſmall iſland bore N. by E. diſtant about 4 leagues.

*Wedneſday*, 20th *April*, 1791.



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## Extract from Captain *John Hall's* Journal of the *Worcester*, towards Bombay, in 1790.

| Course. | D. | Ng. | Wg. | M. Dist. | Lat. | X.L. | L. M. | Chro. | Watch | Obs. | At 3 h. 4 m. Chron. 30° 51′ Watch 40 59 E. Agr. exactly since 17, Obs. & Rem. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N 23 W | 36 | 33 | 14 | Lat. 23° 50′ 0° 40′ W | Obs. 18 4 Acc. 18 1 | 15 | *a* 23 50 0 44W | 30 39E | 40 4 | 42 52 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1 | E. ½ S. | 3 | 4 | N. N. E. | Fair. |
| AKd. | 2 | | 3 | 4 | Breakers, at the mast-head, | |
| | 3 | West. | 4 | | abt. Et. ½ Ls. | |
| | 4 | | 4 | | Sound ground, 10, 12, 12, | |
| | 5 | | 4 | 4 | 13, 13, 12, Rocks. | |
| | 6 | | 4 | 4 | Do. 12, 16, 18, 20. No | |
| | 7 | W. ½ S. | 3 | 2 | Ground *a* 35. | |
| | 8 | | 3 | | No ground 50. | |
| | 9 | W. S. W. | 3 | | In 1st Reefs. | |
| | 10 | | 3 | | No ground 80 fathoms. | |
| | 11 | N. N. E. | 4 | | N. W. | |
| | 12 | | 4 | | AKd. | |
| | 1 | | 3 | | No ground 55 | |
| | 2 | | 2 | | Do. 50 | |
| | 3 | | 1 | | Do. 80 75 | |
| | 4 | | | | Do. 70 70 | |
| | 5 | N. E. | 1 | | Do. 65 58 | |
| | 6 | | 2 | 4 | Calm. Do. 55 | |
| | 7 | N. E. by E. | 3 | 4 | South. Do. 50 | |
| | 8 | N. E. | 4 | | Do. 50 | |
| | 9 | N. | 1 | 5 | Out Reefs. Do. 50 | |
| | | | 1 | 4 | Do. 65 | |
| | 10 | N. by W. | 1 | 4 | Var. Rain. Do. 58 | |
| | 11 | N. by E. | 2 | | Do. Do. Do. 135 | |
| | 12 | N. E. b N. | 1 | | AKd. Do. 75 | |
| | | | 70 | | | |

Friday, 20th August, 1790.

Fair weather, &c. preceding noon. Tacked to the eastward. About one the water was discoloured, very smooth ground, 10, 12 fathoms, and a call from the mast-head of breakers, bearing East. Sent an officer up, who confirmed it, also several of my people. AKd. ground, 12, 13, 16, 18, 20. No ground 35, though not run more than 3 miles West. At ½ past 2 lost sight of the breakers. No ground 55, 45, 65 fathoms: water reassumed its colour. Stood to the westward, until far enough to weather that part. At 10 put about and stood N. N. E.

Saw several grampusses yesterday and to day; therefore am in doubt if at 2 P. M. breakers were seen, as in the Worcester's log, 2d August, 1782, with Sir Rich. Bickerton and Fleet, we had soundings exactly in that latitude, and did not see any thing, though the men of war were much spread, and a looking out. At noon, 19 miles to the westward of soundings, in latitude 18 2 S.

⊙ ☾ At 3 58 4 Longitude 43° 20′ 45″
4 1 36 Do. 43 22 00
4 8 40 Do. 43 7 30
M. 4 2 47 Mid. 43 16 45
Mr. Baylis, at 4 h. 20 m. long. 43 14 } E.
Mr. Gowar, Do. - 43 7 }
Xa. of Long. Coast, from observations, is 34 miles W.

| Course. | D. | N.g. | Wg. | M. Dist. | Lat. | X.L. | L. M. | Chro. | Watch | Obs. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N 44 W | 28 | 21 | 19 | 0 59 W. | Obsd. Acc. 17 43 | 20 | 1 4 W. | 30 49 | 41 6 E. | 42 56 E. | |

| | H. | Courses. | K. | F. | Winds, &c. |
|---|---|---|---|---|---|
| Sound gr. 22 fm. | 1 | E by N. | 4 | 6 | N. B. AKd. Cloudy. |
| Stood off; 21, 22, | 2 | W. by N. ½ N. | 3 | | 19° 01′ 18° 46′ |
| Half 16, 15, and 17. | | | 2 | | V. 18 26 18 21 W |
| 17 to 25, 43, 46, 54. | 3 | | | | |
| Wore; gr. 70, 52, 43, | 4 | N. E. | 3 | | 18 50 19 16 |
| 23, 15, 13, half 16, | 5 | | 2 | 4 | Wore. |
| 15, quarter l. 17, 16 | 6 | | 2 | 6 | N. N. W. |
| 15, 17, 16, 15, 17, 18. | 7 | | 3 | 2 | W. N. W. |
| 25 to 28. | 8 | | 3 | 6 | |
| 28 to 30, 30 to 23, | | | | | |
| 25, 23, 21, 22. | 9 | | 4 | | |
| 20, 21, 19, 22, | 10 | | 4 | | |
| half 18. | 11 | | 4 | | Shortened Sail. |
| 15, half 12, 13, quarter l. 14, half 11, | 12 | | 4 | 4 | S. by W. |
| hauled off, quarter | 1 | | 2 | 2 | |
| l. 17, 13, half l. 14, | 2 | N. | 4 | 4 | |
| half 13, half 14, | 3 | N. E. | 5 | 2 | |
| quarter l. 15, 15, 17, | 4 | | 4 | | Made sail. |
| 25, no ground 30, | 5 | | 3 | 4 | Ampl. 19° 49′ |
| ground 25, 22, 27, | 6 | N. | 2 | 2 | Azth. 19 54 |
| 22, 13, 16, 18, 21, | 7 | N. E. | 2 | | 18 15 W. |
| 24, 23, 20 to 28. | 8 | | 7 | 3 | 18 56 |
| 29 to half 14, hauled | 9 | | 7 | 3 | A sand bank at mast |
| off, half 16, 17. | 10 | | 8 | | head N. E. by E. |
| Quarter l. 19 to 25. | 11 | | 3 | 2 | about 3 leagues. |
| 27 fathoms. | | | 3 | 2 | At 21 33, |
| 25 fathoms. | 12 | | 6 | | Chro. L. 30° 42′ |
| 20 fms. blue mud. | | | 127 | | Watch, 41 11 |
| 21 fms. Do. Do. | | | | | |
| 19, 21, 22, mud and | | | | | |
| black sand and shells. | | | | | |

Saturday, Aug. 21.

First part dark, the remainder fair and pleasant gale; soundings as per log. Kept a good look out, &c. At daylight the water very much discoloured, with a great deal of scum on its surface. At ½ past 10, A. M. saw from the mast-head a sand bank in the middle, and higher than the other part, but a regular rise, with breakers at each end, extending altogether about a point, or a mile; the dry a moderate height, and about a ¼ of a mile in extent, the sandy part reddish, N. E. by E 3 or 4 leagues, ground 50 fathoms, mud; had the same soundings for several casts. Kept away North; had 22 22; then saw it off the poop, E. by N. 6 or 7 miles; run to its bearings, E. ½ N. 20 19 S. and then to E. ¼ S. 20 fathoms, red gravel; then on to E. 32 S. (noon) 7 or 8 miles, 22 fathoms, dark sand. Lat. obs. 18 19 S. which gives the lat. of the *sandy island* 16° 21′ S. This latitude is so near to the *Chesterfield Shoal*, that I call it by that name; but the soundings do not correspond from the Parcella Bank, as there is a want of soundings by the chart of a great way betwixt them; nor does the longitude correspond with any account of the Chesterfield Shoal; and my second and third officers, from sight of stars, make its longitude 44° 15′ E. by me, from observation sun and moon, yesterday, it is in 43° 30′ E. of Greenwich, and by dead reckoning from Madagascar, in 23° 50′ S. 2 miles to the westward of it. Captain *Larkins*, in the *Warren Hastings*, in 1788, fell in with the Chesterfield Shoal, and made its latitude 16° 24′ S. and longitude by Mr. *Leigh*, first officer's, observation sun and moon, the day they saw it, 43° 3′ E. of Greenwich, except I should have made a mistake in copying it.

| Course. | D. | Ng. | E.g. | M. Dist. | Lat. | X. Long. | Chro. | Watch. | Obs. |
|---|---|---|---|---|---|---|---|---|---|
| N. 18 E. | 85 | 89 | 27 | a Lat. 23° 50′ S. 0 32 W. | Obs. 16° 19′ Acc. 16 19 | a 23° 50′ S. 0 36 W. | 30° 42′ | 41° 11′ E | 43° 23′ |

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I cannot find how we paſſed *John de Nova*, for the night was remarkably clear, and a very good look out. An objection ariſes in my mind about its being the Cheſterfield Shoal, for that is deſcribed, beſides its ſituation, literally a ſhoal with one ſmall rock upon it that is dry, and a patch of reddiſh ſand; and to extend Eaſt and Weſt, with high breakers: This we judge extends *North* and *South:* and dry at leaſt a $\frac{1}{4}$ of a mile in length, the middle a tolerable height, to be ure, 30 feet in the middle, as thus, from the Poop

I cannot but call it an Iſland, it is of ſuch a height as to be ſeen plainly from the Poop, with the naked eye, 3 leagues: and another reaſon for not thinking it the Cheſterfield Shoal, is, that when ſhip paſſed it, and was 3 leagues to the N. W. of it, they had increaſed their ſoundings to 40 fathoms, and then no ground; whereas we had ſmall irregular ſand and muddy ſoundings, for at leaſt 6 leagues to the Northward, and two leagues to the Weſtward, or more: Then from 25 fathoms to no ground, which is exactly as the north part of the Parcella or Pracel Bank breaks off. I have annexed the ſoundings until I loſt them, that they may be in one view, as I am on the ſubjeſt of the ſhoal and iſland.

From noon to 1 P. M. we had 23, 22, 24, flat ſtones, ſand, and ſhells—1, to 2—24, 27, to $\frac{1}{2}$ 13, in two or three caſts, ſometimes mud, ſometimes red ſand—2, to 3—$\frac{1}{2}$ 14 $\frac{1}{2}$ l. 13, hauled off North, then we had 18, 19 $\frac{1}{2}$, 19, $\frac{1}{4}$ l. 20, 25, coarſe ſand; then no ground 30, 40, 65, fathoms: bore away N. E. by N.

N. B. The water ſince day-light very much diſcoloured, but the laſt hour before we were off ſoundings it reaſſumed its natural hue.

I muſt leave to the better informed to determine what I cannot; but I am firmly of opinion than the *Cheſterfield Shoal* and this *Sandy Iſland*, are two diſtinct dangers. We are ſure our ſoundings, the preceding evening, were on the weſt ſide of the Parcella Bank, in 17° 43′ South; and what I do and did ever underſtand, there are no ſoundings near John de Nova, on either ſide, as the Cheſterfield Shoal lies near the direction of our courſe from it.

## THE COMORO ISLANDS,

## AND DIRECTIONS FOR SAILING INTO THEIR ROADS.

## COMORO,—MOHILLA,—MAYOTTA,—JOHANNA.

### DANGERS TO THE EASTWARD AND WESTWARD OF THE COMORO ISLANDS.

THE COMORO ISLANDS are four in number, *viz.* Comoro, which gives its name to the reſt, Mohilla, Mayotta, and Johanna; they are all very high, and ſeen at a great diſtance in clear weather: the length of each of them is between 6 and 8 leagues; the



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breadth from 4 to 5; their inhabitants, who are Mahometans, are the deſcendants of Arabs, and a courteous and civil people. Comoro, called alſo *Angazicba*, is the largeſt and higheſt of theſe iſlands: as you come near its weſternmoſt point, you will deſcry a ſmall round iſland, not unlike that at Johanna, which you muſt round, and ſteer along ſhore to the northernmoſt end of the iſland, to which you give a birth of 2 miles; when round the point, haul in for the land, ſteering N. E. and N. E. by N. and when you bring a black bluff point S. by W, ½ W. and the eaſternmoſt land in ſight E. by N.; you may then anchor in 16 fathoms, ſandy ground; here are reefs to the eaſtward and weſtward of you; lie your beſt bower to the weſtward for the freſh gales at S. W. you will lie about 1 mile at high water, and ½ a mile at low water from the ſhore.

When you are getting round the north point of the iſland, it is neceſſary you ſhould hoiſt out all your boats in readineſs for towing, as the high land totally excludes you from the monſoon, and you are ſubject to nothing but calms and light airs, added to which there is a tide here which ebbs and flows to a prodigious degree, "Whereby," ſays Captain *C. W. Webber*, Jun. of the *Oxford*, 1759, "I found it extremely difficult to get in near enough to lay hold of anchor ground; for it is ſteep to, till you come upon the bank, which does not deſcend with an even or gradual declivity from the ſhore, but goes off almoſt perpendicularly at once; and cloſe to it, before you get ſoundings with 30 fathoms, you will not be able to find ground with 70 or 80, which I believe is the caſe all round the iſland at the diſtance of 1 ½ mile, or 2 miles from the ſhore. The place of anchoring would be very dangerous was it liable to any gales of wind, but it is entirely ſheltered from the monſoon; and I believe there very ſeldom happens any gale of wind from other quarters ſtrong enough to endanger a ſhip.

"The iſland has plenty of very good bullocks, ſheep, goats, oranges, and lemons, plantains, &c. but there is a great ſcarcity of water, and near the King's Town; inſomuch that I was obliged to ſend water from the ſhip for the uſe of my people on ſhore." The following particulars concerning this iſland are taken from the Log of the *Suffolk*, Captain *C. Lewin*, who was there alſo in 1759.

Bearings at anchor in 24 fathoms, ſandy ground, off Comoro; King's Town about 2 ſmall miles E. ½ S. a black bluff point like 2 rocky iſlands, S. S. W. the eaſternmoſt land E. by N.

"The town is large, and full of cocoa-nut trees, with a fine ſmooth ſandy beach before it; it is the only place where we could land; ſhoal water runs off about ¼ of a mile, and at low tide you cannot come off with your boats. Whenever you ſee this town ſend boats a-head, for as the ſhore is bold in all other places, you would have no thoughts of foul ground off ſuch a fine ſandy beach.

"The firſt ſoundings we had were 35, and then 25 fathoms when anchored. Latitude obſerved in the road, 11° 18′ South. When you have 12 fathoms, you are cloſe to the reef. We lay about a cable's length too near the King's Town, and had we continued longer at the iſland would have moved.

"The people at Comoro are very civil; the price of bullocks, ſettled with the King, is from

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from 4 to 6 dollars; there are here ſheep, goats, &c. but no water to be had. The King offered cowries, rice, &c.

" Of all the iſlands, Johanna, Comoro, and Mohilla, I give the preference to the latter,"

About 16 leagues S. E. by S. from Comoro, lies MOHILLA, or *Mohaly* and *Moallee*. The beſt road, according to *Van Keulen*'s deſcription, is on the ſouth ſide of the iſle, behind ſome ſmall iſlands, round which is a coral reef; you ſtand over to the reef, the leaſt water being 8 or 9 fathoms; and the ground clearly ſeen, but there is no danger. Being over the reef, you get 45, 43, and 40 fathoms, oozy ground, and 38, 36, 30, fine ſand, *viz.* To the eaſtward of the ſmall iſlands, where you anchor; beſides this there is another anchoring place cloſe to the ſhore, in 20 fathoms, off the north point of the iſland, and a third on the eaſt ſide, where refreſhments may be had.

Captain *William Wilſon*, of the *Suffolk*, having been there in May, 1756, an extract of his Journal will acquaint us more particularly with the iſland.

" 28th of May, 1756, latitude 12° South, at noon, made long. from Mozambique home to Johanna 3° 15′ Eaſt*. The extremes of Mohilla from E. ½ N. to N. N. E. Diſtant from the ſmall iſlands to the S. W. of it 4 miles. The high land of Comoro North.

" 29th fair weather, the firſt part of a pleaſant moderate gale; continue rounding the iſland with a deep ſea line going, but got no ground at 40, 50, and 60 fathoms; gave the iſlands to the S. W. of Mohilla a birth of 4 or 5 miles, and when clear of them, hauled in for the north-weſt end of Mohilla. About 2 miles ſhort of the north-weſt point of the iſland, there is a black rock, which is always above water, and lies about 2 miles from the ſhore: we kept about 2 miles without it, and had no ground at 30 or 40 fathoms. From the north-weſt point of Mohilla there is a reef of rocks above water, which runs out about ¼ mile; we kept ½ mile without them, and had no ground, 30 fathoms; being clear of the point, and opening the land to the eaſtward, hauled in for ditto, and ſoon got ſoundings 30 fathoms, ſmall ſtones and coral, which ſhoaled gradually to 15; we then edged away into 24; ſeeing a ſmall town on a bluff hillock cloſe to the ſea, ſent our pinnace on ſhore to enquire for the watering place, but being much ſhort of the place laid down in the Waggoner, continued ſtanding on. The pinnace returned, and informed us that we might have water and proviſions where they had landed; having ſhot paſt, tacked, and ſtood in with our boats, ſounding between us and the ſhore.

" At 6 P. M. came to with the ſmall bower in 24 fathoms, and moored with the ſtream to the northward in 26 fathoms, ſmall ſtones, ſhells, and coral; diſtance off ſhore ¾ of a mile: when anchored, the north-weſt point of Mohilla bore W. S. W. the eaſternmoſt land E. by S. ½ South, and the town S. S. W.

" At day break ſent Mr. *Jackſon*, our ſecond mate, in the pinnace, to examine the coaſt between this and the King's Town, &c.

" At ſun-riſe ſent the long-boat aſhore with caſks, and rafted with the ſmall boats, in the mean time went aſhore to ſee the watering place; found it to be about 200 yards from the

* The *Princeſs Amelia*, in June 1797, found the latitude 12 deg. 7 min. South, (centre of the Bay) and the longitude 44 deg. 31 min. Eaſt of London.

beach.

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beach, up an eaſy aſcent, but the water is in a declivity, which ſeems to have been worn by torrents from the hills, about 12 feet deep; and being too ſtep to roll our caſks up, we made uſe of our engine to fill them, whence they were rolled with great eaſe from the beach, which is a ſoft ſand. The run of water, which is clear, and conſtant from the mountains down between the rocks, is loſt about 10 yards below where we filled in the rocks and ſand, and may be obſerved to ooze out of the beach at low water.

" We found an Eaſt and Weſt moon to make full ſea on the change. The ſtream ſets along ſhore, the flood to the weſtward, but changes conſiderably before the water has done riſing, as does the ſtream to the eaſtward before it has done falling. The water riſes on the new moon 15 feet; and a reef of rocks runs from the point whereon the town ſtands, acroſs the little bay on which the watering place is, to two rocks to the eaſtward, which are always above water, and ſues dry; this prevents your boats working the laſt quarter ebb, and the firſt quarter flood."

" 30th May, Mr. *Jackſon* returned from his ſurvey, and informed us, That the King's Town is about 4 leagues to the S. E. by S., the coaſt between us and it very dangerous, ſeveral reefs of rocks running far out into the ſea; that a ſhip cannot lie nearer than 2 miles from the land off the King's Town; that there is a large ſurf on the ſhore, and that boats cannot go in after half ebb. The watering place is a mile beyond the town, and is not ſo convenient as where we are filling, having a chopping ſea, which prevented the boats rowing. He landed and walked,' he thinks, ' 4 miles farther along ſhore to the S. S. E. when he came to a large run of water, like that of Johanna. The coaſt appeared very rocky, and being open to the S. E. a large ſwell came in, and there was a great ſurf on the ſhore, which he ſuppoſes would make it very troubleſome watering there.'

" 1ſt June, the iſlanders complain of our people taking their cocoa-nuts, and other fruit from the trees, without paying for it, which I have ſtrictly forbid.

" 2d, filled the remainder of our caſks, and took on board ſome cowries, and 20 heads of cattle.

" 3d, took on board our ſtock of paddy, plantain-trees, pumpkins, and as much fruit as we could ſtow.

" At 2, P. M. hove up the ſmall bower anchor, took on board 7 bullocks, and prepared for ſailing, &c.

" Notwithſtanding the plenty with which this iſland ſeems to abound, we could not get any more than 27 bullocks to bring away with us, and many of them very ſmall."

MAYOTTA, the ſouthernmoſt of the Comoro Iſlands, is leſs frequented and leſs known than the others, being entirely ſurrounded with dangerous reefs. At its north-weſt end there is a Saddle Iſland, like that off the north-weſt point of Johanna, which has probably been the occaſion that ſeveral Eaſt-India ſhips erring in their latitude, have miſtaken Mayotto for Johanna. The town and anchorage lie about 5 miles S. E. by E. from that iſland. This anchorage is remarkable by a bluff head, with rocks overhanging the ſea, and miſtaken for a ſhip at anchor cloſe in ſhore. It flows there upon change days, E. by N.; the water riſes 11 feet.



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JOHANNA, which they call alſo *Anjoan*, is of a triangular form; between its two north points are the bay and anchorage, and the ſouth point lies about 12 leagues N. W. from Mayotta. This iſland is the moſt frequented by European ſhips, and when you are bound to it you muſt fall in with the ſouth point, off which there is a reef which will be perceived as you come near it. This reef runs along the weſt coaſt to the north-weſt point of the iſland, where it joins with a ſmall iſland, called, from its appearance, *Saddle Iſland*; you may ſteer for that iſland, and round it at about ½ mile diſtance, in 10 or 11 fathoms. The water appears as if a ſhoal, but there is nothing to fear if you keep in that depth.

When you have the bay open by Saddle Iſland, you muſt keep your luff as much as poſſible (there being no danger but what you ſee) leſt the flaws, that come off the iſland very ſtrong, ſet you out, being variable, and no anchoring, unleſs you are near the town, which lies in the very bight of the bay; though the anchoring place is when the peak bears S. by E. ½ E. The Moſque Eaſt; the extremes of the bay N. E. eaſterly to N. W. by W. and the river S. by W.

The anchoring before the town being very bad, it is not adviſable to lie there, for your off anchor lies in 25 fathoms, and your other in 7; and at low water you will not be diſtant above 2 cables length from the ſhore; whereas off Brown's Gardens, being moored in 10 fathoms with your inner anchor, you will lie better, and at low water be a good quarter of a mile from the ſhore.

*Brown's Gardens* are a long range of cocoa-nut trees cloſe by the water-ſide, having a large black rock to the eaſtward, betwixt the town and them, and the river where you water being the extreme of them to the weſtward.

Between Brown's Gardens and the Moſque Town there is a reef of rocks, which are dry at low water, and ſpit out near a quarter of a mile. It is high water at 4 o'clock ½, on full and change days, the flood ſetting commonly to the N. W. and the ebb to the Eaſt. The tide flows up and down near 2 ½ fathoms; and as the beach is very level, when it is high water you appear at a great diſtance off, but at low water, when the large ſtones ſhew themſelves, you will find yourſelf cloſe to the ſhore.

There is another watering place that comes through the firſt Toddy Tope, to the eaſtward of the town' for which you bring the Moſque to bear S. E. by S.

At this iſland you get plenty of good water, but wood is ſcarce: here is alſo abundance of proviſions, ſuch as beef, goats, fowls, lemons, oranges, cocoa-nuts, &c. at a cheap rate; but the air is unwholeſome, chiefly during the night, and to avoid its bad effects, you ought not to lay aſhore.

The N. E. Monſoon ſets in at Johanna and the adjacent iſlands, between the 10th and 16th of November, and then it is dangerous to lie in the road; in the S. W. Monſoon, you meet with little winds variable and calms, and the current ſets generally ſtrong to the S. W.

Among the DANGERS adjacent to the Comoro iſlands, we have already mentioned the reef lying 4 or 5 leagues to the E. N. E. of Mayotta. Another ſhoal diſcovered by the ſhip *Firebraſs*, in 1682, lies to the Eaſt of that iſland at about 45 miles, according to *Thornton*;

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*Thornton*; and a third is placed 24 miles to the ſouth-eaſtward of Mayotta, by the ſame Hydrographer.

On the weſt ſide of the Comoro iſlands, there is a *Shoal without breakers* 3 leagues from the ſouth-weſt point of Comoro. The Portugueſe pilot ſays that it is 5 or 6 leagues long, N. W. and S. E. that at half flood, the ſouth part has 6 fathoms, and the north end 4 fathoms water.

Eight leagues to the weſtward of Comoro there is a *Reef of breakers*, ſaid to have been ſeen by the *Devonſhire* in 1764; it appeared to be about 2 miles long, and to run N. E. and S. W. but the exiſtence of this danger appears to be extremely doubtful: Captain *Sampſon Hall*, in 1797, has ſailed in the *Sullivan*, in company with the *Princeſs Amelia*, Captain *Ramſden*, about that diſtance, that is to ſay 8 leagues from Comoro, during the whole of a fine day, and ſaw nothing like breakers or ſhoal.

In the paſſage between Comoro and the coaſt of Africa, lies the *St. Lazarus Shoal* or *Bank*, in about 12° 10′ latitude South, and 10 or 12 leagues eaſtward of Querimba Iſlands; though it has been ſounded on by ſeveral Engliſh ſhips, its true ſituation, nature, and extent are uncertain; but the Portugueſe deſcribe it as dangerous.

This ſhoal appears to be the ſame as that mentioned by Mr. *Oſborn*, (firſt officer of the *Kaunitz*, an imperial ſhip in 1791) which bears S. E. ¼ S. from Cape Delgado, diſtance about 27 leagues, and 14 leagues to the eaſtward of the Querimba Iſlands, in latitude 11° 3′ South, and 42° 25′ Eaſt of Greenwich, per celeſtial obſervation. "We ſaw the breakers," continues this officer, "from the quarter deck, bearing Eaſt about 3 leagues, had no ſoundings, and it blowing freſh, could not remain longer; at the ſame time, the weather being clear, we could ſee the land to the weſtward, which I judged to be about 11 leagues diſtant."

## PASSAGE FROM THE COMORO ISLANDS, TO THE LACCADIVE OR LAKE-DIVAS; AND THE NINE DEGREES, AND TEN DEGREES CHANNELS.

### *ISLANDS* AND *SHOALS* IN THE PASSAGE.

WHEN you ſail from Johanna for India you may ſteer N. N. E. as far as the 8th parallel of ſouth latitude, and provided you do not make a greater eaſting, there is no danger. Beſides, as the latitude of the Aldabra iſlands is known, you may be upon your guard in the ſuppoſition of an error eaſtward, which is the leaſt to be apprehended, as it has been experienced that the currents about theſe iſlands are ſetting to the S. W. As you run to the northward you will meet with freſh and ſteady gales at S. S. W. and S. W. and the

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the more you decreaſe your latitude, the more weſterly will you find them, and the freſher do they blow.

From the 8th parallel of ſouth latitude you ſteer N. E. ½ E. ſo as to croſs the Line at about 54° longitude Eaſt of London or near 3° to the eaſtward of the ſhoal of Amber. Hereabouts you will find a ſoutherly current, from 10 to 15 miles in 24 hours: you may continue your courſe N. E. or N. E. by E. till the latitude of 3. ° 30′ North, and about 58° Eaſt of London, when you are clear of all danger, and may ſteer as you pleaſe. But when the S. W. monſoon begins to abate, ſhips ſhould ſhape their courſe more eaſterly, as they will have very ſtrong weſterly currents, and might fall in with the coaſt of Africa.

Having got thus far, if they are bound to Bombay they will haul to the northward, in order to get into the latitude of their port, and then run down upon it with an eaſterly courſe.

Let them keep the parallel of 8° 50′ North, till they have ſoundings, which they will find 28 or 30 leagues off the coaſt, at 80 or 90 fathoms, and by them they may run in for the land. If the weather be clear, the land about Bombay may be ſeen in 40 fathoms water; and then its diſtance is about 10 or 11 leagues. From 55 fathoms, brown ſand, you will run 22 or 20 leagues before you ſhoalen the water to 36 fathoms, muddy ground: in 36 fathoms you will be 8 or 9 leagues off the coaſt; in 26 fathoms 6 or 7 leagues; and in 17 or 18 fathoms from 4 to 5 leagues.

Ships bound to the Coaſts of Malabar and Coromandel, from the Inner Paſſage, after having croſſed the Line, direct their courſe for the LACCADIVE ISLANDS, through which there are ſeveral channels.

Theſe iſlands, almoſt all inhabited, are low and ſandy, covered with cocoa-nut trees, and not to be ſeen above 5 or 6 leagues from the maſt-head, in clear weather: the ſea overflows ſome of them, and they are all ſurrounded with breakers.

The common channels for ſhips are called the Eight-degrees, and the Ten-degrees Channels.

Between the iſlands Seuhelipar and Malique, is the TEN-DEGREES CHANNEL, reckoned the ſafeſt of the two. The beſt latitude to ſail in is 9° 36′ or 9° 40′ North; you muſt be careful of keeping your parallel in going through, for though the current in general ſets to ſouth-weſtward, it happens ſometimes that it takes a northerly direction.

If you ſee either of the Iſlands, you may take a freſh departure, and direct your courſe for Cape Comorin; but if you paſs through this channel without ſeeing any of the iſlands, which is often the caſe, as the weather in the S. W. Monſoon is generally very cloudy and hazy, you muſt continue to ſteer to the eaſtward, in the above-mentioned parallel of latitude, till you ſtrike ſoundings on the Coaſt of Malabar.

Between the Iſlands Malique and Kelay, is the EIGHT-DEGREES CHANNEL; the beſt latitude to go through, is 7° 30′ to 7° 45′ North.

*N. B.* You will have no ſoundings nearer any of the Laccadives than 4 or 5 leagues, neither on the eaſt or weſt ſides, nor in the channels, but at much the ſame diſtance.

In latitude 9° 40′ North, which is a little to the ſouthward of Cochin, you will get



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ſoundings at 60, 50, or 40 fathoms, 15, 13 or 11 leagues off the coaſt; and the water ſhoalens gradually, as you run for the land.

In the above latitude and in clear weather, you can but juſt ſee the land from the deck, in 23 fathoms water, which is as near ſhore as you need; and in the above depth, its diſtance will be 8, 9, or 10 leagues. You may then ſteer a S. S. E. courſe, which will lead you along ſhore; or take a freſh departure and direct your courſe for Ceylon.

About 37 or 38 leagues North of Comoro Iſland lies the little Iſland of ST. MARTIN's, named alſo *Little Comoro*; it was diſcovered in 1600, by *Aleixo de Mota*, a Portugueſe, and ſeen 7 years afterwards by Captain *Sharpeigh*, an Engliſhman; ſince that time its exiſtence has been queſtioned by the generality of navigators: the Portugueſe pilot mentioning a ſhip who ſailed near it in February 1700, deſcribes it as a ſmall iſland about half a league in breadth, and as much in length, even with the water's edge, and not to be perceived at 2 leagues diſtance; it is full of trees, with a ſandy beach round it, and very ſteep as the ſea only broke on the ſhore.

Little Comoro was ſeen likewiſe on the 28th of May 1777, by the Engliſh ſhip *Valentine*, as it appears by the only journal remaining of that ſhip, which was loſt in her homeward-bound paſſage.

Seventy leagues to the north-eaſtward of little Comoro the LATHAM's SHOAL was diſcovered in 1758, by the ſhip of that name in 6° 57′ latitude South, 13 leagues from a point of land bearing W. ¼ N. ſuppoſed to be Zanzibar, but which Mr. *Dalrymple* is inclined to think was the Iſland Monfia then in ſight.

In 9° 38′ latitude South, and about 68 leagues N. E. by N. nearly, from the road of Johanna, are the two iſlands of ALBADRA, or *Aldabra*, named *Atques* in the old Engliſh Charts. They have been explored in 1743 and 1756, by the French, and ſeen in 1766, by the *Aſia*, who paſſed between them: above 20 leagues N. E. by N. from theſe lies ISLE NATAL in 8° 32′ latitude South.

The BASSAS DE PATRAM were deſcried from the maſt-head, in 1758, by Commodore *Wilſon* in the *Pitt*. He found them to lie in 4° 50′ lat. South, and 50′ mer. diſt. Eaſt from Comoro; they were breakers with a dry ſand, and by the bearings about 3 miles in extent.

The BANK, or BASSAS DE AMBER, under the Equinoctial Line, have been ſeen by ſeveral Engliſh ſhips, eſpecially by the *Panther*, Captain *Affleck*, May 17, 1760, ſailing from Johannah towards India; her latitude at noon was 0° 9′ mer. diſt. 5° 49′ Eaſt of Johanna at 2 P. M. they ſaw the bank of Amber, bearing E. 5 or 6° South and 7 or 8 miles diſtant; they ſounded and found no ground at 35 fathoms. At 4 P. M. they made the extremes of the bank, which was dry, and had no ground at 100 fathoms. 12° 20′ Weſt variation had been obſerved A. M. and 12° 21′ P. M. A mean between the reckonings of ſeveral ſhips, would place this ſhoal in 51° 50′ longitude Eaſt of London.



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# OF THE WINDS

## *WHICH PREVAIL IN THE EASTERN SEAS.*

IN the whole extent of the ſouthern part of the Indian Ocean, between the Cape of Good Hope, and New-Holland, to the South of the 28th parallel of latitude, the winds are variable all the year round. Indeed you meet frequently with winds from the Weſt, the N. W. and north quarters, which ſometimes veer to the N. E. but it may be ſaid in general that the winds are never conſtant in this part of the eaſtern ſeas.

From the 28th parallel of latitude going towards the North, to the Eaſt of Madagaſcar, the winds blow from S. E. to E. during the whole year; they call them *General* or *Trade-winds*, as we have ſaid before, becauſe they prevail in this manner, not only in the eaſtern ſeas, but likewiſe in all the other ſouthern ſeas; except that in the latter their tract extends as far as the Line, whereas in the Indian Ocean, this tract ſeems to be limited between the 28th parallel of latitude in ſome places, and thoſe of 8 to 9 degrees in others, chiefly to the South of Java, and of the other iſlands to the Eaſt.

This rule, in regard to the winds, though pretty conſtant, is nevertheleſs ſubject to ſome variations when the ſun is in the auſtral part, that is to ſay, in the months of October, November, December, January, and till the 15th of April; the ſun changes there the ſtate of the Atmoſphere; you then frequently ſee N. W. winds prevail, ſometimes winds from the Weſt inclining to the South, chiefly towards the changes of the moon. This diſpoſition of the winds is principally known between Madagaſcar, and the Iſles of Bourbon, now called *Reunion Iſland*, Mauritius and Diego Rays, or Rodrigue; it ſerves the ſhips to ſail up from one iſland to the other, in a much ſhorter time than during the other months of the year. It is alſo in this ſeaſon that ſtorms and huricanes are often raging in the tract aſſigned to the general winds.

# THE PERIODICAL WINDS OR MONSOONS,

## THE SOUTH-WEST MONSOON,

## THE CURRENTS,

THEY uſually diſtinguiſh in the Eaſt-Indies four Monſoons, or Seaſons, during which the winds commonly blow ſix months from one ſide, and ſix months from the other.

The S. W. Monſoon prevails to the North of the Equinoctial Line, while the S. E. Monſoon blows from the South of the Line; and when the N. E. Monſoon follows that of the S. W. to the North of the Line, a Monſoon is ſeen to prevail in the ſouthern part, wherein the winds blow from the N. W. to the Weſt, and in ſome places to the S. W.



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The S. W. Monſoon obtains from the 15th of April till the 15th of October, in the whole extent of the ſeas compriſed between the coaſts of Africa, Arabia, and Japan.

The N. E. Monſoon prevails from the 15th of October to the 15th of April, in the ſame extent, except only on the Red Sea, and in the Gulf of Perſia, which have particular winds: we might alſo add the Straits of Malacca, where the winds are generally ſhifting, and in which the Monſoons do not blow for a long time; yet while the S. W. and N. E. winds are at the ſtrongeſt without the ſtraits, a middling gale blows on the ſame ſide within the Straits of Malacca, that is, from the eaſt quarter in December and January, and from the weſt quarter in June and July.

The change of the two Monſoons comes on gradually and never ſuddenly, variable winds prevailing between the two; but theſe revolutions are commonly followed with, and ſometimes preceded by, ſtorms and hurricanes, chiefly when the N. E. Monſoon replaces that of the S. W. *viz.* in October and November: thoſe which happen in April are leſs frequent and leſs impetuous.

The Monſoons from the S. E. and N. W. which reign to the South of the Equator, are circumſcribed within a leſſer extent, ſince they are felt in the ſouthern ocean, only from the Line to the 8th or 9th degree of latitude, and as far as the 12 or 13th towards the Iſles of Sunda, Timor, &c. As for their boundary from Weſt to Eaſt, it is obſerved that they blow only from the Meridian paſſing near the north-eaſt end of Madagaſcar, to the Molucca Iſlands.

The winds during theſe two Monſoons have in the ſame time a very different direction from thoſe that prevail to the North of the Line; for when they come on that ſide from the S.W. they blow on the oppoſite ſide from the S. E. When the N. W. Monſoon, which generally begins in November to the South of the Line, obtains in that quarter, it is then the N. E. wind that is blowing on the north ſide.

As to their change, it is not accompanied with hurricanes and ſtorms, like thoſe which happen in the north part; and though you have bad weather, and the land and ſea-breezes are more or leſs ſtrong, the winds are never violent.

Some authors, who ſeem to have copied each other, limit the S. W. and N. W. Monſoons to 2 degrees of latitude South; but after many reſearches, enquiries, and obſervations on that head, the moſt experienced navigators have diſcovered only between the Monſoons to the North and the South of the Line, ſome alternate variations, little perceptible, and which they do not think ſufficient for fixing a boundary.

As to the ſpace of ſea ſituated to the South of the Equator between the Meridian paſſing near the north-eaſt end of Madagaſcar, you meet there, from the month of April till that of October with S. S. W. winds, which, when you are going to the North, incline more to the Weſt to unite with the S. W. winds blowing to the South of the Line.

From the months of October or November till the month of April, you have in the ſame tract winds from N. N. E. to Eaſt, and near the coaſt they come very often from the E. S. E. to S. E. probably to re-eſtabliſh the equilibrium of the air rarefied on the land by the great heat of that ſeaſon.

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The Red Sea and the Gulf of Perſia, although divided only by Arabia, have different winds: they blow in the Red Sea from the ſouth quarter almoſt nine months in the year, to wit, from the end of Auguſt till the 15th, or even to the end of May, when they vary from North to N. N. W. and commonly continue in this manner till the end of Auguſt; but the land and ſea-breezes prevail ſometimes over theſe winds.

In the Gulf of Perſia the N. W. winds blow from the month of October to the month of July, and the S. E. winds during the remaining 3 months: however neither of them are ſo regular, nor of ſuch duration as thoſe of the Red Sea, being often interrupted by ſtrong S. W. winds, chiefly about Cape Muſſeldom; and ſometimes by land-breezes.

The S. W. Monſoon begins to blow on the coaſt of Africa to the North of the Equator in the firſt days of March; and towards the end of that month it prevails on the coaſts of Arabia, at the entrance of the Red Sea, and as far as Cape Roſſalgat. In the beginning of April it is met with on the ſouthern coaſt of Perſia without the Gulf, then at Cape Guadel, on the coaſt of Sind, on that of Guzurat; and as far as St. John's Point towards the 15th of April; but from Bombay, all along the coaſt down to Cochin, the S. W. Monſoon begins only the latter end of May, or at fartheſt the 15th of June, and then it is general.

From Cochin to the South as far as Cape Comorin, this Monſoon commences fifteen days ſooner than at Bombay. In the Gulf of Manar, as well as along the Coaſt of Ceylon, it is felt from the 15th of April.

The Currents in thoſe ſeas are partly regulated by the impulſion of the winds: near the coaſts, on account of a ſmaller depth of water, their effect is more eaſily perceived; as to their direction, it depends for the moſt part on the bearing of the coaſt, the headlands they meet with, and the iſlands which are adjacent to the continents: along the north-eaſt coaſt of Africa, from the Equinoctial Line to Cape Guardafuy, thence on the coaſt of Arabia towards Roſſalgat, and on the ſouth coaſt of Perſia, the Currents begin to run from the S. W. in March or in April, and continue in that direction till September or October, when they ſet from the N. E. to the S. W.

From Diu Point to Bombay, you rarely meet with a regular Current, on account of the ſtrong tides, but in Auguſt and September the overflowing of the Ind or Indus, and of the Rivers of Cambay, Surat, and others, produces in thoſe ſeas a ſtrong Current which ſets towards the South.

From St. John's Point to Cape Comorin there is almoſt conſtantly a Current running like the coaſt from N. N. W. to S. S. E. except that between Cape Comorin and Cochin, you find it from S. E. to N. W. from October to the end of January.

The Current ſets from the Ocean into the Red Sea from the month of October till the month of May; and it comes out of that Sea between May and October.

In the Gulf of Perſia it ſets commonly towards the Ocean during the whole time of its running towards the Red Sea: on the contrary it runs into the Gulf from the month of May to the month of October.

In that part of the Ocean comprized between the African coaſt and the Laccadives, it has been ſuppoſed that at all ſeaſons of the year, the Currents did ſet towards the Weſt; and

and this opinion was grounded on the differences found in the reckonings of ſhips, which make the Coaſt of Malabar, ſailing from the Mozambique Channel, or from Mauritius. But as it is known in this paſſage that the Currents to the South of the Equator run pretty ſwift to the Weſt, the difference is not to be aſcribed to the motion of the ſeas in the northern part. Beſides, in examining the journals, differences have been found in a contrary way: however, during the S. W. Monſoon, when you approach the Laccadives, the Currents ſet to the S. W. as we have obſerved already: among theſe Iſlands their direction is S. S. W. and between them and the Malabar Coaſt S. S. E.

In the Gulf of Manar, between Ceylon and Cape Comorin, from the Month of May to that of October, the Current runs to the northward; during the remaining ſix months, that is, from October to May, its direction is S. W. and S. S. W. From Berberyn Iſland along the ſouth coaſt of Ceylon in the S. W. monſoon, the Current ſets to the eaſtward; but during all this time there is no regular Current on the eaſt coaſt of the main iſland, between Aganis and Trincomalay: from the latter place it runs to the northward along the Coaſt of Coromandel. From the end of September, and even ſooner, till the month of February, the Current takes its direction from Point Pedro, towards Point de Galle to the S. E.—S. S. E.—South—S. W. and Weſt, according to the bearing of the coaſt: at Point de Galle it meets and unites with the Current that comes out of the Gulf of Manar.

Beſides thoſe general rules, the Currents round Ceylon are liable to variations and ſudden ſhiftings, for which no reaſon can be aſſigned; a ſhip has been forced to anchor near Berberyn Iſland by a calm, and by a current which was running ſtrait to the land; but thoſe tides or currents are neither frequent nor laſting; the ordinary Current along the ſouth coaſt is not above a league *per* hour, and in the Gulf of Manar, as well as on the north-eaſt coaſt, it is always very weak in June and in November.

## THE NORTH-EAST MONSOON.

IT is natural to imagine that the N. E. Monſoon, which follows that from the S. W. prevails in all the places where the latter has been felt, and this rule is found true in all India, as well as on the whole extent of the Ocean compriſed between the African and Arabian ſhores, till within a certain diſtance of the coaſt of Indoſtan; but an exception muſt be made for the ſouth coaſt of Perſia, and for thoſe of Guzurat and Malabar, where the winds are never ſteady. Between the end of October and the 15th of November, the land and ſea-breezes beginning in thoſe parts, will laſt four months, and ſometimes more; they are very ſerviceable to ſhips who ſail along up or down the coaſt, and we ſhall deſcribe them more particularly in the ſequel of this work.

When the land and ſea-breezes are towards their end, they are ſucceeded by winds from the N. N. W. to W. N. W. which blow till the return of the Monſoon, and then you have very few regular breezes. Thoſe winds from the north-weſt quarter blow ſometimes very ſtrong, chiefly from the end of February till the 15th of April, and they occaſion

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occaſion ſuch a ſwell for a fortnight together, that it is very difficult to ſail northward; nor can you make any progreſs that way, without continually availing yourſelf along the ſhore of the ſmall breezes which are blowing there.

As to the ſhips that are ſailing weſtward between the 15th of November, and the 15th of January, they have a very quick paſſage from the Coaſt, where the breezes prevail, to the tract of the N. E. winds blowing in the offing; but when later they muſt be at a great diſtance from the land to meet with thoſe winds.

## THE MONSOONS ON THE COAST OF COROMANDEL, AND OTHER PLACES OF THE BAY OF BENGAL.

### THE SOUTH-WEST OR WEST MONSOON.

### THE CURRENTS.

DURING the month of March, on the Coaſt of Coromandel, the weather is generally mild, with a clear ſky, and without ſtorms; and if any ſhould happen they are ſoon over; after midnight a gentle breeze blows from the N. W. ſhifting to the S. W. and ſometimes calms; but when it blows freſh, the wind laſts without interruption till 9 or 10 o'clock in the morning. In the afternoon, and ſeldom before, the S. E. breeze begins; it varies to the E. N. E. and ſometimes even to N. E. Thoſe ſmall returns happen chiefly when the moon of February anticipates much on the month of March.

In the offing, that is in the Bay, the winds are variable from the S. W. to South, to Eaſt, and N. E. the Currents follow theſe variations, but they are more ſubject to run northward, the South wind being the moſt frequent; it is pretty near the ſame along the coaſt.

The months of April and May produce the ſtrongeſt Currents: Theſe are ſetting to the North and N. E. It is alſo in thoſe months that you meet with the ſtrongeſt breezes from the S. S. E. a calm happens in April, only when the moon of March is late, and before ſome ſquall, or before the return of the N. E. Monſoon.

On the Coromandel Coaſt the moon of April is dreaded on account of this return of Monſoon; it is at leaſt accompained with violent winds, and rains which laſt 3 or 4 days; in this uncertainty it will be prudent, to avoid all danger, to paſs the Lunation 2 or 3 leagues off the ſhore in 15 and 16 fathoms water. This caution concerns eſpecially the coaſt we are ſpeaking of, for in the bottom of the Bay, the ſqualls and ſtorms are much more frequent during this month.

The regular breezes before mentioned which come from the S. S. E. begin commonly between 9 and 10 in the morning, laſting till 9 or 10 in the evening, and ſometimes all night.

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In the morning the winds come from the S. S. W. and S. W. and when they blow freſh the S. S. E. breeze is ſtrong.

In ſome years towards the end of April, you have weſterly winds for 2 or 3 days; generally the ſky is pretty clear, except in the evening, that it is ſometimes clouded in the weſt quarter, and then accompanied with lightnings; when the day-breeze happens to be ſtrong the Horizon is a little hazy towards the Eaſt.

In the month of May the weather is pretty near alike; you have commonly in the morning land-breezes, from S. W. ſometimes pretty briſk; when they are ſtrong they hold on much longer than April: on this account the winds from S. S. E. to South, by which the land-breezes are produced, begin only in the afternoon, to finiſh about 9 or 10 o'clock in the evening, as we have ſaid juſt now, and are conſequently of leſs duration. This happens chiefly towards the end of this month, when you have ſometimes for 3 days ſteady winds from the Weſt and S. W. which are ſtrong in the middle of the day, and moderate in the morning and evening.

Between the regular land and ſea-breezes the calm prevails generally: the breeze becomes ſtrong when there is no calm, and that the S. W. winds chop about from the South to the S. S. E. and S. E.

There are ſome years, when in the courſe of this month ſtrong gales, or dry ſqualls, will happen, that laſt one hour or two; they come from the N. W. and ſeldom from the eaſt quarter; ſometimes they are accompanied with rain and thunder, and then there is little wind.

In the bottom of the Bay of Bengal the months of April and March are very dangerous, for beſides violent ſtorms which ſometimes rage there, few years will be found where you are not expoſed to hard gales from the North, and impetuous ſqualls which laſt 5 or 6 hours, and even longer, coming on every third day.

During thoſe two months the winds that prevail in the offing are from the S. S. W. to the S. W. and in May to the W. S. W.

The months of June, July, and Auguſt, differ little from each other, the N. W. Monſoon is then in its greateſt ſtrength off the coaſt, the winds are conſtant from S. W. to Weſt, principally in June and July; but towards the end of the latter month, and in Auguſt, they blow often from the W. N. W. even to N. W.

On the Coaſt of Coromandel the land-winds are not ſo ſteady, and you have frequently South and S. E. breezes from the offing.

The Weſt and S. W. winds during thoſe three months are exceſſively hot, and in ſome years, to an intolerable degree; they blow now and then with ſo much violence that the air is darkened by the quantity of ſand and duſt which they raiſe from the ground; and theſe duſt-clouds are often carried very far into the ſea: this is to be ſeen in the dryeſt years towards the end of June, and in the month of July; but it does not happen when, the tempeſts being more frequent, the ground has been moiſtened with the rains, which is generally the caſe in the month of Auguſt.

As long as the Weſt winds are in their force, the ſea is ſmooth along the coaſt, chiefly at Pondicherry;

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Pondicherry; then the Chelingas or country boats can eaſily go over the bar, which at any other time breaks very much, and whoſe paſſage is attended with difficulty.

While, during this ſeaſon, you have pretty fine weather on the Coromandel Coaſt, heavy rains fall in the bottom of the Bay of Bengal, at Ballaſore, Chittigong, Aracan, and Ava; on the whole coaſt of Pegu, at Siam, and other places to the Eaſt.

The S. W. winds at this ſeaſon blowing ſtrong, in the Road of Ballaſore, are very troubleſome, and hinder the Ganges pilots from coming on board the veſſels; you ought therefore to have good cables and anchors to ſecure yourſelf againſt thoſe winds.

The month of September, though uncertain, is nevertheleſs more ſubject to the Weſt wind than to any other; it veers from the S. W. to the North. The land-breezes come ſometimes from the N. E. but more frequently from the S. E. and S. S. E. In general this wind is very moderate, except a few ſtorms.

In the bottom of the Bay of Bengal, this ſame wind is mild from the middle of Auguſt to September, but the rains continue there in abundance.

The Currents which during the whole monſoon have run with the wind towards the N. E. ſlacken in September. On the coaſt of Oriſſa, about 8 days before the Equinox, their direction is towards the South, and they become ſwift at the end of that month. It is a great help to the ſhips who at that time are ſailing from Bengal to the Coaſt of Coromandel, or other places.

Almoſt every year, after the autumnal Equinox, ſtrong Eaſt winds blow in the bottom of the Bay, on the coaſts of Oriſſa, and Ballaſore; but in the middle of the Bay winds from the north-weſt quarter are often prevailing.

## THE NORTH-EAST OR EAST MONSOON.

THE month of October is the moſt uncertain of the year on the Coaſt of Coromandel; the winds then are very variable, ſometimes frequent calms, ſometimes rains and fair weather. The N. E. Monſoon begins only towards the end of the month, and yet it is not certain. By ſeveral returns of the S. W. Monſoon the winds become variable from the S. E. pretty freſh, to the N. W. weak, and generally calm; ſometimes in the morning a freſh Eaſt wind prevails; and at certain times during 3 or 4 days, the wind blows in the morning from the N. N. W. and in the afternoon from the N. E.

A variety of bad weather, of rains and dark clouds that fly round the Horizon, ſeems to foretell violent ſtorms, which however do not happen often. Therefore all the ſhips moored in the roads depart about the 20th of this month, either to go a wintering on the eaſt ſide of the Bay, or to ſome other place.

In Bengal the rains are generally over from the 10th to the 20th, but the overflowing of the Ganges continues till the end of this month, which is there more ſubject to ſtorms and hurricanes than on the Coaſt of Coromandel, though for the moſt part it blows hard from the N. E. to Eaſt; for this reaſon ſhips bound from the Coromandel coaſt to Bengal, who ſail towards the end of September, ought to keep a good offing in order to weather thoſe ſtorms,



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or elſe they would riſk to be driven aſhore on the coaſt of Oriſſa. In the month of November, though it is far advanced in the N. E. Monſoon, you have a variety of winds which are moſtly N. E. and N. N. E. generally in the morning from N. N. W. and N. W. and in the afternoon from N. N. E. and N. E. but ſometimes S. E. and S. W. winds will blow for 3 or 4 days together. The firſt part of this month is alſo ſubject to calms, which laſt ſeveral days, and are commonly followed with ſtorms, more frequently now than at any other time of the year, and ſo violent that no ſhip can ride at anchor. They begin from the N. W. and chop round from N. to N. E.—E. N. E. and Eaſt. The ſea is then ſo high that you ſee it foam a league off. As ſoon as theſe winds ſhift to South, they directly moderate, and the ſky becomes clear; but if, after having blown violently from N. E. a calm enſues, preſently it blows hard, as before, from the S. W.

Out of the Bay the winds in November are from N. N. E. to E. N. E.

The Monſoon during theſe two months is regular in the offing, from N. N. E. to E. N. E. on the coaſt it generally blows in the morning, from N. W. and N. N. W. and at noon from N. N. E. to E. N. E. The rains are pretty frequent when the wind varies only from N. N. W. to North, ſometimes it rains alſo with a N. E. wind; then it blows hard for 2 or 3 days, and the ſurf becomes ſuch that no boat can go over. In ſpite of this bad weather a ſhip may remain in the road, if ſhe is ſure of her anchors and ground tackle.

In ſome years theſe winds blow pretty near at the full and change of the moons of December and January*, they have blown even in the middle of February, when the moon of January happens to be late; but in general they are always leſs ſtrong in January and February than in December; it has been remarked, in a given number of years, that fair weather has prevailed during theſe months; in the two former months you have a clear ſky without rain, and a moderate breeze, chiefly when the weather has been bad in November or in the firſt part of December; as to the Currents they are found to be according to the direction and ſtrength of the wind.

The month of February is a continuation of the N. E. Monſoon; when this Monſoon happens to be weak, it is repelled, eſpecially after the 15th, by the South winds, whoſe blowing begins ſooner or later every year: ſhips who ſail for Europe, at this time, have often met with theſe South winds, and have been driven by the Currents according to their direction; but they eaſily got the better of them with the firſt North or Eaſt wind, chiefly if they were in the offing, where the Monſoon loſes always leſs of its ſtrength. It is advantageous then to keep in the offing, to avoid the South winds, which are there leſs frequent than near the ſhore.

The North wind holds on in ſome years till March, but ſeldom without a revolution from the South. On the Coaſt the N. W. winds, and the S. E. breezes prevail alſo in the morning; but the afternoon is always mild, let the wind be what it will.

* Although we indicate here, as well as in the courſe of this work, the quarters, or the full and change of the moon, in ſpeaking of the ſhifting of the winds, it is not to be inferred that we believe the winds immediately depend upon thoſe phaſes all other circumſtances being excluded. This expreſſion is employed only to conform ourſelves to the uſe adopted univerſally by ſeamen: we are not ignorant, beſides, that the obſervations on that ſubject are too deficient, either in quantity or preciſion, to decide the queſtion.

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# THE MONSOONS, AND SHIFTINGS OF THE CURRENTS IN THE BAY OF BENGAL.

By a BENGAL PILOT.

"APRIL and October are generally ſtyled the ſhifting months, which ſo far holds good that it has been obſerved ſome years, the S. W. Monſoon broke up the latter end of September, and other years not till the beginning of November, ſo that the month of October is really the mean between the two extremes: the bad weather about this time follows the full moon, and generally betwixt the fall and laſt quarter, more violent down the Bay and along the coaſts of Oriſſa and Coromandel than to the eaſtward; which has often been experienced by ſuch as have ſailed the October paſſage, from the Coaſt to the Bay.

"The North Eaſt or LITTLE MONSOON, as it is called by the natives, ſhifts generally in April, all or moſt part of the Bay, but there are light ſoutherly winds which commence inſhore, all along the Coaſts of Coromandel and Oriſſa, in January; and as the Current ſhifts inſhore, to the northward, about the ſame time, ſhips may ſail from any part of the Coaſt of Coromandel to the northward, with pleaſure, provided they keep not too great an offing. In February, the ſoutherly or ſouth-weſterly winds increaſe in ſtrength, and ſpread farther off; in March ſtill farther, and near half the Bay over; whilſt in the open Bay, a degree or two eaſtward of the Meridian of Point Palmiras, the N. E. winds predominate, as alſo the South and S. W. currents. The natural conſequence of the oppoſite winds and currents is a ſpace or column of calms betwixt them, which ought to be avoided by all means, by keeping a proper eaſting; more eſpecially by thoſe who happen to be diſpatched late from Bengal, and bound round the Cape of Good Hope. The Currents along the Coaſt, as before obſerved, begin to ſhift to the northward, in January, and are at the ſtrongeſt in April; they ſlag in June, then turn again to the ſouthward in July, and are at their full ſtrength in September or October: on the other ſide of the Bay, all along the coaſt of Aracan, obſerve *vice verſa.*

"Bad weather down the Bay in June: the full moon near, or about the time the ſun's entering the Cancer, I have known productive of much miſchief, particularly in the year 1739, when four ſhips foundered with their pilots on board, and all their crews periſhed; myſelf through God's providence eſcaped ſharing the ſame fate aboard another ſhip. And though every year is not always the ſame in violence, yet I never knew it miſs in ſome degree or other. Therefore I hold it neceſſary, being bound to the Bay, to guard againſt the full moon in time, that is if you cannot get a pilot on board two or three days before the full, to delay your time upon the coaſt, or at ſea, till the laſt quarter; theſe ſtorms always blow againſt the Monſoons and give ſufficient warning of their approach.



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## THE SOUTH WEST MONSOON,

### IN THE GULF OF SIAM, AND IN THE CHINA SEAS.

IN the Gulf of Siam, on the Coasts of Camboja and Cochinchina, those of the Gulf of Tonkin and China, the S. W. Monsoon commences between the first days and the end of April, which must be understood of the coast only; for in the offing it begins a month later: it is for this reason that on the north part of Borneo, at Palavan and Luconia Islands, this Monsoon is observed to prevail only from the 1st to the 15th or 20th of May.

As the S. W. Monsoon continues only during six months, and begins near the coasts, it is also near the coasts it ceases first, and the succeeding N. E. Monsoon is to be felt; it extends afterwards like the other, and becomes general on all the seas which are subject to those periodical winds; we are to except only, from this rule, the coasts of Persia, Sind, and Guzurat, already mentioned, with the Coast of Malabar, where this latter Monsoon is never very constant; thus to know when a particular Monsoon is to commence at any place, you are only to consider when the opposite Monsoon has begun, and six months after you may depend on the return of the other.

## THE MONSOONS AND CURRENTS,

### TO THE SOUTH OF THE EQUATOR.

AS we have shewn heretofore the limits of the Monsoons to the South of the Equinoctial Line, what remains to do to terminate this article of the winds, is to give the particular description of their effect in the Isles of Sunda, and the Moluccas.

The S. E. Monsoon begins in those parts in the month of April, and lasts till November, when the N. W. winds become predominant; but this change from one to the other being not suddenly effected, those two months are commonly subject to variable winds.

In the whole extent of the Isles of Sunda, as far as Timore and Solore, the N. W. winds which begin in November, bring on the bad weather; in December they blow stronger, being accompanied with rain, and in January their strength is at the highest; they produce at this time rains, squalls, and storms, which continue till the middle of February; then becoming gradually weaker they cease entirely at the end of March: we must observe that the abundance or duration of the rains, as well as the violence of the storms, are not equal every year; in some seasons both are more moderate than might be expected.

In the month of April the variety of the winds renders the weather mild, and the sea is agitated only by some short tempests. In May the winds become steady in the East quarter; in June and July they blow stronger, but without any bad weather, and with a clear and serene sky that will last till the end of September. In the month of October the

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the S. E. Monſoon decreaſes, and the winds become variable till the return of the N. W. Monſoon.

The waters during each ſeaſon take their courſe according to the winds, except in the Months of April and November, when often they run the contrary way; their velocity is accelerated where the winds are at the ſtrongeſt, and even at the change and full of the moon.

The currents of the N. W. Monſoon are much ſtronger than thoſe of the Eaſt Monſoon; therefore the ſhips who ſail from Batavia to the iſlands of Timore and Solore, or to the Moluccas in the adverſe ſeaſons, find leſs difficulty than thoſe which are returning from the ſame places during the N. W. Monſoon. By the ſame reaſon the ſhips that go from Europe to Batavia, to the Gulf of Siam, to China, &c. paſs the ſtraits of Sunda with more facility in May, June, July, and Auguſt, than thoſe which come out of the ſtraits on their return, in December, January, and February.

The winds in the S. E. Monſoon blow generally from S. S. E. to Eaſt; they vary from N. N. W. to W. during the N. W. Monſoon.

Near the Equinoctial Line the winds are much more variable, which may proceed from two cauſes; the firſt is, that to the North of the Line the Monſoons are different; the ſecond may ariſe from the frequent rains, chiefly at Borneo, where it rains inceſſantly during eleven months of the year.

In the Molucca Iſlands the Monſoons are the ſame as in the Iſland of Java and the adjacent iſlands, with this ſingle difference, that at the Moluccas they give the name of *North Monſoon* to that which we call the N. W. and the name of *South Monſoon* to the S. E. Monſoon, becauſe during the former the wind is oftener N. N. W. than N. W. and that during the latter it blows more frequently from the S. S. E. than from the S. E.

The North Monſoon occaſions in the Moluccas abundant rains, and the South Monſoon produces a great drought. It is the ſame at Java, and in the other neighbouring iſlands; but at Batavia you can ſcarcely diſtinguiſh the fair from the bad weather.

## THE LAND AND SEA-BREEZES.

IN all India in general, as well on the north as on the ſouth ſide, alſo on the coaſts of Africa and Arabia; on the ſouth coaſt of Perſia, and almoſt as far as Guzurat, when the N. E. Monſoon, and that of the N. W. are towards their ending, the Land and Sea-breezes begin near the coaſts, and continue till the contrary Monſoon, which comes there in ſucceſſion, has acquired ſtrength enough to blow conſtantly. This obtains equally on the coaſts of the Gulf of Siam, of Camboja, Cochinchina, Tonkin, and China. And on the ſouth ſide, the ſame happens on the weſt coaſts of Sumatra and Java, in the ſtraits of Banca, and in all the iſlands which extend towards the Eaſt.

In the ſame manner when the S. W. and S. E. Monſoons grow weaker in October, or later, according to the ſituation of the place, you have the Land and Sea-breezes, which hold

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hold on during 4 or 6 hours; but thoſe breezes are not ſo ſtrong as in the contrary ſeaſon, except on the Malabar coaſt, of which we have already treated.

On the weſtern coaſt of Sumatra, and on both ſides of Java, in March and April, the Land-wind begins commonly in the afternoon, by a ſquall, ſometimes very hard, accompanied with rain and thunder; this ſtorm is followed by a moderate Land-breeze, which continues till it is replaced by the one that comes from the offing. In April and May, the Sea-breezes begins ſometimes on the coaſt of Java with a violent ſquall of ſhort duration, which happens ſeldom on the other coaſts.

## DESCRIPTION OF THE *ARCHIPELAGO* OF ISLANDS AND DANGERS WHICH EXTEND TO THE NORTH AND NORTH EAST OF *MADAGASCAR*.

Extracted chiefly from M. D'Aprés.

ADMIRAL BOSCAWEN, in 1748, with a fleet of 26 ſails, went from Mauritius to India, north-eaſtward, through this part of the Ocean, without meeting with any iſland or danger: he confirmed the opinion of thoſe who preferred that paſſage to the uſual track by the North of Madagaſcar, which requires a circuit of 300 leagues more than the former: ſince that time the French have explored the Archipelago we are going to deſcribe, which is now much frequented by their ſhips, and the paſſage is called by them BOSCAWEN'S PASSAGE*. The celebrated author of the *Neptune Oriental*, to whom our work is ſo much indebted, has wrote a narrative of the explorations made there at different intervals, from which the preſent account is taken; but confining ourſelves to an enumeration of the ſeveral iſlands and ſhoals, with their reſpective ſituations, we will abridge, as much as we can, the hiſtorical detail which accompanies his deſcription.

We ſhall begin with *Sandy Iſland*, or L'ISLE DE SABLE. This Iſland, ſituated to the North of Iſle Bourbon, in 15° 52′ lat. South, and 55° eaſt longitude from London, was diſcovered by the ſhip *La Diane* in 1722: it is nothing more than a flat ſandy ſpot 15 feet above the water, nearly $\frac{1}{3}$ of a mile long from N. N. W. to S. S. E. and about 2 furlongs in width; with a ſand-bank running off $\frac{3}{4}$ of a mile towards the S. S E. The Flute *l'Utile* was caſt away there in 1761; and the crew, having made a flat-bottomed boat out of the wreck, eſcaped to Madagaſcar†.

* Mr. *John Lindſay*, at the end of his Directions for the Straits of Malacca, in 1800, in adopting this opinion, makes the following obſervation, *viz.* "Our men of war, from the Cape of Good Hope, toward India, are frequently ordered to call off Mauritius, and the paſſage that way to India is preferable to the inner one. And if a peace, or the capture of Mauritius make our ſh ps take that rout oftener, *I have no doubt the paſſage within Madagaſcar would be given up.*

† This ſhip had 80 blacks, men and women, on board: the whites, who compoſed the greateſt part of the crew, did arrive

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The *Corgados Garajos*, or *Garajos* Iſland, in 60° 2′ longitude Eaſt, was explored in 1742, by two Freneh veſſels who anchored there on the ſouth ſide, the 27th of Auguſt; the plan they took repreſents it like a horſe-ſhoe, ſtretching 6 leagues N. E. and S. W. In 1769, the Chevalier *Grenier* explored the bank, which extends about 70 leagues to the N. E. by N. of this iſland, with ſoundings from 25, 30, to 40 fathoms: this is called the CORGADOS or GARAJOS BANK, and it appears certain that the *Banks of Nezareth* laid down in the ancient Charts, and which have never yet been found, are the Corgados Bank.

THE SHOALS OF ST. BRANDON, according to M. *D'Après*, are the ſame as Corgados Iſland, but it is an error of that learned Hydographer, which has been cenſured with great acrimony by *L'Abbé Rochon*. From the plan given by the Chevalier *Grenier* of the iſlots that extend on the north-north-eaſt ſide of Corgados Iſland, theſe muſt be the true ſhoals of St. Brandon, among which Captain *Edward Leger* of the *Falcon* anchored. *Thornton* in his draught, places them in 16° 38′ lat. and 9° 30′ longitude Weſt from Surat, which removes the ſhoals 60 leagues to the Eaſt of Corgados Iſland.

THE GALEGA is compoſed of two ſmall iſlands in 10° 27′ or 30′ lat. South, and in about 56° 50′ eaſt longitude. Mr. *Dalrymple*, from very ingenious deductions*, thinks there is great reaſon to believe this is the iſland which *Davis* in 1601, called *Roquipiz*; it was ſeen in 1758, and 1768, by two French navigators.

The BANK of SAYA DE MALHA *(the Coat of Mail,)* is thus deſcribed in the Engliſh Pilot: "The northernmoſt part of this Bank lies in 9° 55′ ſouth latitude and 11° 40′ Weſt of the Meridian of Bombay; it is ſteep to. I fell in with the weſternmoſt part of the north point, and had 15 fathoms water, coral rocks, and the next caſt 8 fathoms, upon which I bore away N. by W. and though but a ſmall breeze, yet deepened every caſt, at 12, 15, 22, 25, 32, 60, and 85 fathoms, and then no ground. I came upon it again in 15 fathoms coral rocks, as before; the next caſt had 12, then 10, and fearing ſhoaler water, tacked, and ſtood off N. N. E. and had 11, 12, 13, 14, 17, and 22 fathoms; and having run about 1½ mile, loſt ſounding; in the ſouth part of theſe dangers there are ſeveral banks which in ſome places are ſaid to be dry."

The edition of the *Engliſh Pilot*, commonly called the *Waggoner*, by *Samuel Thornton*, in 1716, marks only 2 fathoms on the ſouthern part, and repreſents the northern part to be dry. "No journal I have ſeen," ſays Mr. *Dalrymple*, p. 18 of his Memoir, "mentions to have had ſhoal water on the Malha; however, if a ſhip ſhould be carried by currents into ſoundings, I think it would be moſt prudent to ſtand to the eaſtward, if the wind admits; but a ſhip ought to be attentive in time to prevent falling in with that bank, at leaſt till perfectly known."

SOUTH ROQUEPIZ, to the Eaſt of the Malha, is an iſland whoſe exiſtence ſeems very

at Madagaſcar, after a ſhort paſſage, and the blacks were left on the iſland, with promiſe of a ſpeedy relief: they all died, except ſeven women, who remained there 15 years, living upon the ſhell-fiſh they could pick, with now and then a turtle, and having nothing but brackiſh water to drink. Captain *Tromelin*, of the ſhip *La Diligente*, had the courage and good luck to land on this dangerous ſpot, and brought them back to Mauritius in 1776. *Abbé Rochon's* Voyage.

* Memoir of a Chart of the Indian Ocean, page 19.

doubtful

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doubtful; nothing is found concerning it but the Journal of *Lancaſter*, who ſaw it in 1602*, praiſes its proſpect, and mentions nothing of the longitude; it is ſaid only that this navigator, having left the Bay of Anton-gil the 6th of March, came in ſight of Roquepiz the 16th of the ſame month in 10° 30′ latitude South; this latitude has been adopted by Monſ. D'Après, who places it in 64° 25′ eaſt from London. We have ſeen juſt now that, according to Mr. *Dalrymple*, this iſland muſt be the ſame as Galega.

To the Weſt of Galega, is an extent of above 7 degrees, there are ſeveral iſlands, the ſituations of which appear very uncertain, according to Mr. *D'Après*. About 3° 45′ Weſt of the former iſland, or above 5°, according to Mr. *Dalrymple*, are thoſe called *Nove* or JOHN DE NOVA iſlands, which ſeem to be joined together by ſeveral iſlots: they form between them a large bay whoſe opening lies on the eaſt, as well as on the weſt ſide. The northernmoſt iſland is a flat marſhy ground covered with ſmall trees, and full of game and of tortoiſes. To the N. W. of theſe iſlands about 10 leagues, are the *Twelve iſlands* very little known; and in pretty near the ſame direction, 10 leagues farther, lies a reef with two ſmall ſandy iſlands in 9° 36′ latitude, which is called *St. Laurence*; then at 5 or 6 leagues diſtance, you find the ſmall iſland of *St. Pierre*, whoſe latitude is 9° 22′ South. This is a flat of lime-ſtones, and white coral, about 3 leagues round, and which may be ſeen 5 or 6 leagues off: the ground is only rotten wood and leaves, and the talleſt trees are ſcarce 10 feet high; there are there many ſea-birds, and large crabs: it is ſteep to, and you have 20½ fathoms a cable's length from the ſhore. Mr. *Morphey*, who was ſent in 1756, by Mr. *Magon*, Governor of Mauritius, to explore theſe parts, gave it the name of *Iſle du Cerf*, though it is very probable this is the Iſland of St. Pierre, which has been ſeen by ſeveral French ſhips going to India. M. *D'Après*, who makes this remark, has placed it in 51° 55′ Eaſt of London, according to the track of thoſe who have met with it in coming from Madagaſcar. Leaving this iſland M. *Morphey* continued his voyage towards the Weſt, and three days after, that is the 13th of Auguſt, he deſcried ſeveral iſlots on a great reef, near which he came very ſoon, by the effect of a ſtrong weſterly current, and which appear to be

THE ISLANDS OF COSMOLEDO; theſe lie about 55 leagues to the north-weſtward of Cape Ambro, the northernmoſt point of Madagaſcar; they are lime-ſtone flats, covered with ſhrubs, the reef being a kind of half-circle, whoſe diameter is above 8 leagues, and green water within. Ten leagues to the N. N. W. of the north-weſt end of the reef, a low ſandy iſland with trees on it, is ſaid to have been diſcovered by the Engliſh Snow, *Drake*.

In 9° 47′ latitude South, about 18 leagues weſtward of Coſmoledo Iſland, is ASSUMPTION ISLAND, explored in that voyage on the 15th of Auguſt by Mr. *Morphey*. It is of a triangular form, ſteep to, and made of lime-ſtones like the others, but full of holes, with a few ſandy downs covered with ſhrubs. On the 18th following the ſame navigator diſcovered another iſland, or rather two iſlands, almoſt joined together on the weſt ſide by

* Captain *John Davis* was Chief pilot, and Captain *James Lancaſter*, who had already been to India, as well as *Davis*, was General of the Fleet ſent from London to the Eaſt Indies. THIS VOYAGE, BEGUN THE 13th FEBRUARY 1600, WAS THE FIRST MADE ON ACCOUNT OF THE EAST INDIA COMPANY.

iſlots;

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iſlots; he approached them very near, and found their latitude to be between 9° 24′ and 9° 35′; their longitude has been determined, or rather conjectured by M. *D'Après* at 46° 55′ Eaſt of London, and according to him they are the *Iſles Aldabra*, which have been already mentioned.

Fifteen leagues to the northward of John de Nova Iſlands, deſcribed here above, you meet with a reef where the French frigate *L'Heureuſe* was loſt; that ſhip having ſailed from Mauritius on the 30th of Auguſt 1769, for Bengal, made the Iſles of John de Nova the 5th of September, 5 or 6 leagues to the Weſt of her, and the following night ſhe ſtruck and went to pieces, on the ſouth part of the reef. The crew eſcaped upon a dry land a league within, from which they came to a ſmall iſland joined with the reef and about 7 leagues northward, to which they gave the name of PROVIDENCE ISLAND. It is only 3 miles long, and about a third of a mile broad, in the middle; the ground is ſand and coral, or white madreporas: the reef with which it is ſurrounded, begins at the northern part, then bends towards the South in ſuch a manner that at the ſouth end of the iſland, it lies half a league from it. This reef extends 6 or 7 leagues ſouthward, and its greateſt breadth near the middle of this extent, is pretty near 2 leagues; the whole ſpace within is filled with banks of ſand and coral*, ſeveral of which are above water; ſo that at low tide it is ſcarce paſſable in a canoe, which without great care would even ground on it at high water.

* "It is wonderful to ſee the *Coral Banks* in all the eaſtern ſeas; theſe Banks are found at all depths, at all diſtances from ſhore, entirely unconnected with the land, and detached from each other: although it often happens they are divided by a narrow gut without bottom.

"I have ſeen theſe Coral Banks in all the ſtages; ſome in deep water, others with a few rocks appearing above the ſurface; ſome juſt formed into iſlands, without the leaſt appearance of vegetation; others with a few weeds on the higheſt part, and laſtly ſuch as are covered with large timber, with a bottomleſs ſea, at a piſtol-ſhot diſtance; though I think in general they are filled up in the centre when they have large timber.

"After ſtorms it is frequently obvious, that the force of the waves has thrown up a bed of Coral; this is, perhaps, at all times imperceptibly affected, though only obvious after ſtorms: Coral Banks alſo grow by a quick increaſe towards the ſurface; but the billows heaping up from deeper water, chiefly accelerate the formation of theſe into ſhoals, and ſoon after into iſlands. The banks become gradually ſhallower; and when once the ſea meets with reſiſtance, the coral is quickly thrown up by the force of the wave breaking againſt the bank; and hence it is, that in the open ſea there is ſcarce an inſtance of a Coral Bank with ſo little water as 3 fathoms, but it is alſo ſo ſhallow, that a boat would ground on it: the looſe coral rolled inwards by the billows in large pieces will firſt ground, and the reflux being unable to carry them away, they become a bar to coagulate the ſand, always found intermixed with coral, which ſand being eaſieſt raiſed, will be lodged a-top. When the ſand-bank is raiſed by violent ſtorms, beyond the reach of common waves, it becomes a reſting place to vagrant birds, whom the ſearch of prey draws thither. The dung, feathers, &c. increaſe the ſoil, and prepare it for the reception of accidental roots, branches, and ſeed, caſt up by the waves, or brought thither by the birds. Thus iſlands are formed; the leaves and rotten branches, intermixing with the ſand, form in time a light black mould, of which in general theſe iſlands conſiſt, more ſandy as leſs woody, and when full of large trees, with a greater proportion of mould.

"Cocoa-nuts continuing long in the ſea, without loſing their vegetative powers, are commonly to be found in ſuch iſlands, particularly as they are adapted to all ſoils, whether ſandy, rich, or rocky.

"The violence of the waves within the Tropics muſt generally be directed to two points, according to the Monſoons.

"Hence the iſlands formed from Coral Banks muſt be long and narrow, and lie nearly in a meridional direction; for even ſuppoſing the banks to be round, as they ſeldom are when large, the ſea meeting more reſiſtance in the middle, muſt heave up the matter in greater quantities there than towards the extremities; and by the ſame rule the ends will generally be open, or at leaſt loweſt; they will alſo commonly have ſoundings there, as the remains of the bank not accumulated will be under water.

"Where the Coral Banks are not expoſed to the common Monſoon, they will alter their direction, and be either round, extend in the parallel, or be of irregular form, according to accidental circumſtances.



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The north part of the iſland is covered with cocoa-trees, and the ſouth part with a ſpungy tree which reſembles the European fig-tree; this is ſtraight, and about 40 or 50 feet high, with knobs like the bamboes, 6 feet from each other; its fruit is not unlike ſmall mangoes. There is alſo a creeping wood, of a red colour and very hard, whoſe aſhes, when they had been ſoaked with rain-water, became a ſtone not to be broke without a hammer, and whoſe inſide appeared glittering like a ſhell. Freſh water is found here in plenty, as well as turtle, and a ſpecies of land-crabs very large and good to eat; they caught one which weighed ſix pounds: there is alſo a great number of rats who neſtle on the cocoa-trees. The latitude of the iſland by four obſervations was found to be 9° 7′; the variation 11° 45′ Weſt. *N. B.* The whole iſland is covered by the ſea, at high water, in the equinoctial tides.

After having remained two months in this iſland the crew, to the number of 35 men, did embark on the 8th of November in their canoe, which had been lengthened 6 feet; and with the help of the N. E. winds, they landed 4 days after on Madagaſcar, 8 leagues to the South of Cape Ambro.

Fifty leagues N. E. by N. from Providence lies ALPHONSE ISLAND, ſo named by the ſhip *le Lys* who diſcovered it in 1730; and 15 leagues S. S. W. of this, there is a reef 5 or 6 leagues in extent.

To the North of Alphonſe Iſland, about 15 leagues, begins the Archipelago of the MAHE' ISLANDS, which were diſcovered in 1743, by *Lazarus Picault*, and named after the famous *Mahé de la Bourdonnais*, then Governor of Mauritius. The extent of this Archipelago from N. N. E. to S. S. W. is above 120 leagues, and from Eaſt to Weſt above 100 leagues; it contains a great number of reefs and ſhoals, pretty well known, the weſternmoſt of which ſeem to be the *Amirantes* of the former navigators. The principal Iſlands are towards the North, *viz.* PRASLIN, SILHOUETTE, and SEYCHELLES, which is largeſt of all, being about 16 miles long, and near 5 broad. On its north-eaſt end there is a harbour between the main and two iſlots; the northernmoſt of theſe is called *St. Ann*, and in 1768, the Abbé *Rochon* obſerved its latitude to be 5° 50′ South, and the longitude 55° 40′ Eaſt of London. The French were then going to make a ſettlement in Iſle Seychelles*, which has nevertheleſs continued deſolate ever ſince that year. Round the

" The interior parts of theſe iſlands being ſea, ſometimes form harbours capable of receiving veſſels of burthen, and I believe always abound greatly with fiſh.

" It need not be repeated that the ends of theſe iſlands only are the places to expect ſoundings, and they commonly have a ſhallow ſpit running out from each point.

See *Hiſtorical Collections*, &c. by *Alexander Dalrymple*, Eſq. Vol. II. p. 22 et ſeq.

* This iſland, according to M. *Sonnerat* (*Voyage à la Nouvelle Guinée*), is the only one that we know of, where that ſpecies of palm-tree grows, which produces the ſea cocoa-nut, called alſo *Maldiva Nut*, from its being carried by the waves to the Maldivas: this nut is in the higheſt repute among the Indians, on account of its true or pretended virtues in the ſcorbutic and venereal diſeaſes: they look alſo upon the ſhell as a moſt powerful antidote. Before the year 1759, when the ſpot where it grows was diſcovered, it was not uncommon to ſee a Maldiva-nut ſold in India for 3 or 400 pounds. *Abbé Rochon*, at the end of his voyage, gives a deſcription of the palm-tree which produces that nut, and ſays it grows only in the *Iſle de Palme*, without telling us which of the Mahé Iſlands is known by that name.

three

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three great iſlands and the ſmall ones adjacent to them, lies a Bank of ſoundings of a triangular form; it extends about 99 leagues from N. W. to S. E. and near 40 in breadth Eaſt and Weſt, with a depth of water from 8 to 44 fathoms, and no ground without on the north ſide, at 120 fathoms.

We ſhall ſubjoin here the detail given by Monſ. *D'Après* concerning the ſouth part of the Mahé Archipelago.

Eighteen leagues and a half N. by W. from Alphonſe, the ſhip *le Lys*, who had diſcovered it, deſcried another ſmall iſland which was named ST. FRANCIS; this ſame iſland of St. Francis was ſeen in 1744, by a veſſel going to the Malabar Coaſt, who had, at leſs than a mile from its weſt ſide, 8 fathoms, coral ground. She ſaw afterwards a like iſland, to the E. N. E. of this, and found between the two, 35 fathoms water, ſame ground. The ſame day at noon, having ſailed 6 leagues N. E. by E. and being in 5° 59′ ſouth latitude, ſhe deſcried a third iſlot 3 miles to the Weſt, and had always from 30 to 35 fathoms. St. Francis's Iſland was likewiſe met with in 1756, by the frigate *La Gloire* bound to Patté. M. *Du Roſlan*, ſent in 1770 from Mauritius to explore the Mahé Archipelago, found an iſland which he named L'ISLE PLATE (Flat iſland), whoſe latitude is 5° 45′ South, and the longitude 55° 36′ Eaſt of London; it appeared to be 3 miles round, with a reef in the north part which runs about a mile off.

Steering N. W. from Flat Iſland, he ſaw another to the N. W. by W. which he approached, within half a cannon ſhot, without finding any ground; he ſent an officer to find a proper anchorage, and the following day he went himſelf to viſit the iſland which he named L'ISLE DU BERGER (Shepherd's Iſland); it is higher on the north than on the ſouth ſide; there is a cut or ſeparation in the middle, which at a diſtance will make it appear like two iſlands. This cut is a bank of hard coral covered with ſome white ſand, and entirely under water at high tide, but when the tide is low, it dries ſo much that you may croſs from one part of the iſland to the other; it is about two leagues in circumference. The ground being very hard coral, with ſome ſand over it, the trees are tall, but very ſpungy; there is alſo a few cocoa-trees of a ſmall kind, and many birds of various ſorts; the inſects found there were very ſmall red ants, flies, ſpiders, &c.; the ſailors ſaid they had ſeen alligators and blue hens. The whole iſland is encompaſſed with a reef that ſtretches off a quarter of a league, having a channel through which you may enter with a boat, then go upon the iſlands by means of a natural cauſeway; the inſide of this reef is full of turtle, ſharks, and many other fiſh. The iſland lies in 5° 45′ lat. South, and 55° 13′ long. Eaſt of London.

From this place M. *du Roſlan*, ſtanding to the W. by S. deſcried a Third iſland, which he called ISLE DE L'ETOILE, (Star Iſland); it is only a ſand bank covered with buſhes, and about half a league long; the ſurrounding reef runs off to the ſouthward about one mile, and the ſoundings are very uneven between this iſle and Shepherd's Iſland.

At 6 o'clock in the evening a Fourth iſland was ſeen, which received the name of MARIE LOUISE; it appeared woody ſurrounded with a reef, and of the ſame ſize as Flat Iſland; its latitude was found to be 6° 18′ South. and the longitude 52° 24′ Eaſt.



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The 14 December the ſame navigator diſcovered a Fifth iſland, 2 leagues diſtant W. S. W. from Marie Louiſe; he came within a league of it, and had 9 fathoms water, rocky ground: this was alſo covered with wood, but appeared ſmaller than all the reſt, and was named Isle des Neuf (Iſle of the Nine); it lies in 6° 15′ latitude South, and 54° 37′ longitude Eaſt; the depth of water between the two iſlands is from 25 to 30 fathoms, but towards the offing you ſuddenly loſe ground.

The ſame day, at noon, they ſaw a Sixth iſland, diſtant about 10 miles W. by N. from Iſle des Neuf, and like that iſland a mere ſand-bank covered with buſhes; they gave it the name of La Boudeuse.

According to Monſ. *D'Après* theſe ſix iſlands muſt be thoſe which in the ancient Charts are called *the Amirantes*, although in a latitude leſs ſoutherly by 2 degrees.

Let us now proceed to the deſcription of the banks and dangers lying to the Eaſt, or S. E. of the Mahé Iſlands.

Coetivy Island, called *Iſle St. Francis*, in Vicomte *Grenier's* Chart, was diſcovered on the 3d of July 1771, by the Chevalier *De Coetivy*, who gave it his own name. M. *D'Après* places it in 7° 12′ latitude South, and 56° 38′ longitude Eaſt.

Bank Adelaide, according to Chevalier *Grenier*, lies 15 leagues N. E. of this, and in 6° 9′ lat. South, 57° 5′ long. Eaſt; 6 or 7 leagues N. N. W. of Bank Adelaide you meet with *Succeſs Bank*.

Fortune Bank, about 23 leagues to the S. S. E. of Bank Adelaide, is thus deſcribed by M. *De Kerguelen*, p. 13 of his voyage. "On leaving Mauritius, the 13th of September, 1771, I made my courſe, *corrected North*, to traverſe the Archipelago, which is to the northward of this iſland; in the night between the 18th and 19th, about 1 A. M. there was a violent ſquall of rain and wind, with thunder and lightning; at 11 P. M. had no ground, but ſounding in the ſquall, found only 30 fathoms, and next caſt only 19, rocky ground. I ſtood on the other tack under a fore ſail, till I had got my anchor ready, and ſhoalened the water to 17, 15 and 14 fathoms, ſand, when, being apprehenſive of driving upon ſome ſand-bank, I anchored, and veered out 100 fathoms of cable; the ſhip brought up and rode faſt during the ſquall, which laſted till 2 A. M. I continued at anchor all night, and we were ſurrounded at that time with ſharks, of which we caught above 50, and with a prodigious quantity of crabs, with which the ſea was covered: the multitude of ſharks about us made the ſea luminous as breakers. At length day came to relieve our uneaſineſs, but we ſaw neither land nor rock. On weighing I let the veſſel drive, and continued ſounding for a long time; I had 14 fathoms, then 20, 25, 28, and then at once no ground. I named this Bank after my veſſel *La Fortune*; it lies N. W. and S. E. in 7° 16′ latitude South, and 58° 15′ Eaſt from London; its extent, according to Monſ. *D'Après*, is 3 leagues.

This Bank had been diſcovered on the 31ſt of May 1770, by the *Verelſt*, Captain *Compton:* he was on the 30th in 7° 24′ ſouth latitude obſerved, and 7° 44′ eaſt longitude from St. Mary: he ſuppoſes they were upon the bank, but did not ſound till about a quarter before 1 P. M. when he had 15 fathoms, coral rocks, then 14 for ſeveral caſts; being fine clear

weather

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weather, he could not ſee the leaſt appearance of ſhoal or breakers from the maſt head; the water was very ſmooth; ſteered N. E. ¼ E. which was almoſt cloſe to the wind, going about 4 knots; by a quarter after 1 P. M. had ſhoaled to 12 fathoms, continued that depth till 2 P. M. then deepened to 14 fathoms for a few caſts, and ſhoaled again to 12 fathoms: From half paſt 2 till 3 P. M. had 11 fathoms very regular; from 3 to half paſt 3 P. M. 10½ fathoms very regular; from the laſt ſoundings 10½ as faſt as could paſs the line along; no ground at 20, 50, 100. Though the north-eaſt edge be ſteep, it is ſuppoſed the ſouth-weſt part ſhoalens gradually, ſome people having obſerved the water diſcoloured as early as 8 and 10 A. M. the preceding day. They found the north-eaſt end of this ſhoal in 7° 11′ ſouth latitude, and 7° 54′ from St. Mary's, or 58° 27′ Eaſt of London.

Immediately after loſing ſoundings, the water came to its proper colour again, with the ſwell as uſual; all the time they were in ſoundings on the Bank, they had numbers of ground-ſharks, which followed the lead ready to devour it.

The longitude of Fortune Bank was found to be only 57° 38′ Eaſt of London, by the *Surat Caſtle* who croſſed it from the ſouthward on the 22d of February 1789. The firſt caſt of the lead was 15 fathoms irregular, and the run over the bank a 15 to 10 leaſt water; appearance of breakers on the weſtern edge; bottom coral rocks, and coloured ſhells, with large white ſpots towards the north end of it, and many riplings round it.

About 40 leagues to the northward of Fortune Bank, there is another, according to the French, with ſoundings from 19 and 13, to 31 fathoms, which ſeem to be the ſame as the bank which was croſſed by the ſhips *Prince George*, and *Mary*, in 1755.

In 6° 0′ latitude South, and about 60° 5′ longitude Eaſt, Isle Roquepiz, or *North Roquepiz*, as it is called by M. *D'Après*, is ſuppoſed to lie; and 30 leagues to the ſouth-weſtward of this, the little Iſland of Prince George, both deſcried in 1755 by the aforeſaid ſhips: a reef runs off 5 or 6 leagues to the S. W. from Roquepiz. The *Portugueſe Pilot* deſcribes three flat iſlots, in an eaſt and weſt direction, covered with buſhes, and which muſt be placed at the end of this reef; none of them were ſeen by thoſe ſhips.

Twenty-three leagues to the N. E. of Roquepiz, from latitude 5° 17′ to latitude 4° 35′ South, The Swift's Bank lies in an extent of about 20 leagues N. N. E. according to the journal of the ſhip *Swift* bound from Mauritius to Ceylon in 1744. The ſoundings upon it are from 24 to 18, 27, 18, 24 and 35 fathoms. Twelve or 15 leagues E. by S. from the ſouth end of Swift's Bank you meet with a ledge of rocks and breakers, ſeen in 1746, by the *Roſe Galley*, Captain *Gentleman*: the *Portugueſe Pilot* places the Seven Brothers eaſtward of this Bank in 4° latitude South.

Theſe Rocks ſeen by the *Roſe Galley* are the fartheſt to the eaſtward of any Bank or danger, till you reach the Chagas and adjacent iſlands. The ſpace between them of above 10° in longitude, being entirely free from iſlands or ſhoals, as we may fairly preſume from the many ſhips which have gone the ſouthern paſſage without encountering any thing above or under water, as well as from thoſe that have formerly paſſed the ſame way between Bombay and England. Although the dread of the Chagas, and of imaginary iſlands and ſhoals, has brought this track into diſuſe in late times, "I am clearly convinced," ſays a Gentleman,

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man*, who joins a great practical knowledge with the moſt profound theory, "it is preferable in every reſpect: for Iſle Rodrigue, or Diego Raiz, as we call it, being high land, there is no danger of miſſing it; its longitude being well aſcertained, there cannot be a better point of departure; and as this iſland abounds with wood and water, and plenty of turtle, there cannot be a more convenient place for refreſhment, in the homeward bound voyage, for ſhips late in the ſeaſon, who have the proſpect of a long and difficult paſſage round the Cape."

## THE CHAGAS ARCHIPELAGO. DIEGO RAYS ISLANDS, &c.

CHAGAS, or CHAGOS, the iſland from which this Archipelago takes its name, is called DIOGO GARCIA in the ancient Charts, and to this day the Portugueſe, as well as the French, give only the name of Chagas to the Banks northward of the iſland. This double appellation has produced two iſlands inſtead of one, and the learned *D'Après* himſelf places the Chagas Iſland, ſeen in the *Pitt* in 1763, above 2° 30′ to the Eaſt of Diogo or Diego Garcia. The obſervation (of the diſtance of the Moon to the Sun) made on board the *Pitt*, by Mr. *Stevens*, fixes the longitude of Chagas at 73° 25′ Eaſt of London, which agrees within 20 minutes with the longitude found by the recent obſervation of the Moon made on ſhore by the French*. The latitude of the middle of the iſland is about 7° 18′ South.

Chagas, which has the honour of being claimed by the Engliſh and the French, has no freſh water, although covered with woods; it is about 13 miles long from North to South, its ſhape being that of an horſe-ſhoe, bent in the middle from Weſt to Eaſt, and whoſe ſand ſides are not more than a mile broad. The harbour lies within thoſe ſides, being about 4 miles broad, with an iſland in the middle, where it is narroweſt; its entrance is towards the N. W. between three iſlots which lie from N. E. to S. W. Lieutenant *Archibald Blair*, ſent to ſurvey this harbour in 1786, found that of the 4 paſſages between theſe iſlots, 3 of them are fit only for ſmall veſſels, but the main channel, which lies between Middle and Weſt Iſlands, is broad and clear of every danger, but what may be ſeen from the maſt-head; a ſtranger, ſays this officer, may enter without riſk, in a clear day, keeping only a good look-out.

Coming into harbour during the S. E. winds, it is proper to keep pretty cloſe to the ſand, which extends almoſt a mile weſtward of Middle Iſland; by this means a ſhip will generally fetch into good anchoring ground, without tacking; then your anchor will bear

* Mr. *Dalrymple*, p. 17, of the Memoir ſo often quoted and made uſe of in this Section.

† *Abbé Rochon*, in the preliminary diſcourſe of his voyage, p. 46, ſpeaking of this iſland, ſays, "I have determined its longitude 68° Eaſt of Paris," (70° 25′ Eaſt of London) which muſt be an error of the preſs.

S. ½ E.

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S. ¼ E. of West Island; but you must have attention not to stand too far to the westward, to avoid the shoals in the bight.

"This part of the harbour," continues Lieutenant *Blair*, "appears much the safest when the North-westers blow, and is equally secure with any other part in the South-easters: its vicinity to the sea, and the facility with which ships may be brought in or carried out, gives it another grand preference to any other place of this capacious harbour; if necessary, ships may be warped within 500 yards of this shore, which may be looked upon as another advantage.

"We anchored in sand, and our soundings were generally sand; but there is no part of the harbour entirely clear of coral rocks, or rather coral stones, which makes it requisite to have always good ground-service; and no ship ought to come here without having a chain to one of her anchors, as it may be necessary, in particular circumstances, to anchor in rocks which would ruin a cable in a short time; six or seven fathoms of chain bent to the anchor, and the cable to it, would effectually preserve it from damage; this would not much impede the progress of heaving, nor hurt the hawse holes, if a hawser of the same length with the chain, were bent to the anchor, with an eye to the inner end stopped to the cable; when the clinch of the cable is hove up to the hawse, a fore-tackle hooked to the above would bring the anchor high enough for catting."

Examining the western coast of the island, this officer generally stood within half a cable's length from the breakers, and about 3 miles to the S. E. of the west point he sounded again immediately but could get no ground. From a minute inspection he concluded that no vessel can anchor on the outward coast of Diogo Garcia, except opposite the harbour, and even there, too close to the shore to justify such a measure, unless in urgent necessity; for though it is there perfectly safe while the wind remains at S. E. instances have been experienced of its veering as far as N. W. during the S. E. Monsoon: the danger certainly exists and ought to be avoided.

"From the experience I have had," pursues the Lieutenant, "and from all the information I have been able to collect, the N. W. currents are constant from the middle of May, when the S. E. winds begin to have force, until November, when their strength abates; the currents then become like the wind, variable, and sometimes setting easterly."

"Making this island in the months of July, August, and September, the greatest vigilance is required; as the S. E. winds blow very strong, with hard squalls, much rain, and heavy cloudy weather, I would recommend to keep in the parallel of 7° 18′ South to make the island, and to make an allowance for a N. W. current, which probably may set on an average 16 miles per day; and if tolerable observations are made, there will be no fear of missing it, in the most hazy weather; nor do I think there is any danger in running during the day, even in thick weather, as the shore is so bold. Great caution would be necessary in the night particularly, if near the island, to have the vessel under such a sail that she might be hauled by the wind instantly to S. E. on seeing the land; when it would be requisite to ply to windward till the morning, to avoid falling to leeward by the current, and at day-light to stand boldly in, bordering close to East and Middle

Middle Iſlands, and rounding the ſpit that extends about a mile to the weſtward of the latter as cloſe as conſiſtent with ſafety, to fetch the higher up the harbour. An officer at the maſt-head is preferable to any directions that can be given. Working up, care muſt be taken not to ſtand farther to the weſtward than to bring Weſt Iſland North, to avoid the ſhoals in the bight; nor too much to eaſtward, to avoid thoſe extending ſouthward of Middle Iſland. The weſt ſide of the Bay is beſt for anchoring, unleſs a ſhip can fetch ſo high as to make the eaſt ſide a weather ſhore. Next to lunar obſervations the variation is the beſt guide for correcting the reckoning in this run: in 1786 the variation was 2° Weſt; it decreaſes about 1° for 3° of longitude eaſtward.

About 30 leagues N. W. by W. from Chagos, according to Mr. *Dalrymple's* Chart are the SIX ISLANDS, called by Vicomte *Grenier* in his larger Chart, *South Iſles of Chagas* and by Mr. *Dalrymple*, *Egmont Iſlands**. They are all very low, and joined together by ſhoals which appear fordable; three only abound with cocoa-nut trees; four extend in a direction to W. N. W. the other two tend to N. E.: reefs with breakers, connected with the two extreme iſlands, form an appearance of a ſmall harbour, on the north-eaſt ſide of them; Lieutenant *Blair*, who examined it, found it difficult of acceſs, and dangerous within, from the number and cloſeneſs of the ſhoals. There is no ſafe anchorage near theſe iſlands, the ſoundings extending ſo little without the breakers: to S. W. a ſmall coral bank ſtretches near half a mile off; about 4 leagues South of them lies the PITT BANK, 7 or 8 miles broad, and about 20 from N. N. W. to S. S. E. with ſoundings from 8 or 10 fathoms water in the middle part, 18 or 20 on the eaſt end, and from 70 to 90 towards the weſtern ſide.

Sixteen miles northerly, from the Six Iſlands, lies an iſland ſeen by the French ſhip *La-Boufonne* in 1777, and called by Lieutenant *Blair*, DANGER ISLAND: it is covered with thick wood, and a few cocoa-nut trees near the centre. When abreaſt of Danger Iſland, you can ſee EAGLE ISLANDS, which bear from it N. 25° E. diſtant 11 miles. The ſouthernmoſt is an inconſiderable ſpot, covered with jungle; the other is 2 miles in extent, covered with cocoa-nut trees, and others common to thoſe iſlands; no ſoundings except very cloſe to it, on the weſt ſide; but to the eaſtward you have 9 or 10 fathoms, a mile Eaſt of the ſmall iſland.

The THREE BROTHERS bear N. 77° Eaſt, diſtance 13 miles, from Eagle Iſlands: they are ſmall; two abound with cocoa-nut trees; and they are connected by ſhoals, and by a fourth iſland having ſmall buſhes on it, which cannot be ſeen unleſs very cloſe in.

About 38 miles north-eaſtward of the Three Brothers lie the chain of iſlands called ELIZABETH ISLANDS, after the French ſhip of that name who explored them in 1744, and named in M. *D'Après's* Chart *Peros Banhos*; this Chain is 15 miles in length from South to North, with a channel in the middle of it, through which the *Elizabeth* ſailed; from the north point turning to the Eaſt, it extends in that direction about 15 miles: all theſe iſlands are very ſmall and ſurrounded with reefs and dry rocks.

* Theſe iſlands were ſeen by M. *De Surville* in 1756; and by the *Egmont* in 1760; by M. *Du Refland* in 1771; and the *Eagle* in 1772.

Nine

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Nine or ten miles to the North of theſe lie the BOURDE'S ISLANDS, which were diſcovered in 1766, by a French Captain of that name, who took them for the Adu Iſlands; they are the ſame as thoſe which have been called by Vicomte *Grenier*, *North Iſles of Chagas*, and by Lieutenant *Blair*, *Peros Banhos*. From the deſcription given by the latter officer, they conſiſt of two chains. The north-weſt chain, which extends about 7 miles N. by W. and then ſtretches to N. E. for 3 miles, where there is a channel; it is compoſed of 7 iſlands and ſeveral dry ſands connected by very ſhoal water, and bears the appearance of becoming an iſland. The northern chain is formed by 8 iſlands, with ſeveral dry ſands and rocks; either ſide of the ſeventh iſland is a navigable channel; in that to the Eaſt 10 fathoms is the leaſt water, but within it is full of dangerous ſhoals.

THE SOLOMON ISLANDS, which were diſcovered by Captain *Bourdé*, mentioned above, are the *Boddam's Iſlands* of Lieutenant *Blair*; the centre of their cluſter bears E. 18° S. from the north-eaſt Bourdé's Iſlands, diſtant 17 miles. There are eleven of them; on the ſouthern ſide they are joined by rocks and ſands with breakers.

"November 20th ſtanding round the eaſt ſide, where they are alſo joined," ſays that officer, "to N. W. found a channel, and within there was an appearance of a good harbour; hoiſted out a boat, and ſent her a-head to ſound; at 11h. 30m. ſtood over the bar which lies acroſs the entrance; the leaſt water we had was 3 fathoms; when over, regular ſoundings, from 10 to 18, coral and ſome ſpots of ſand; working up paſſed ſeveral ſhoals, on which there ſeemed to be but little water: at 1h. 30m. P. M. anchored with the ſtream in 13 fathoms, ſandy clay, near the ſouth-eaſt iſland, the entrance bearing N. N. W. diſtant about 2 miles.

"From November 21ſt to 25th we were employed wooding and watering: the well was dug 5 feet deep, about 30 fathoms from high water mark, and a copſe of cocoa-nut trees on the ſouth-eaſt iſland: the water was pretty clear, well taſted, and in abundance; we caught 20 turtle, 2 large ſeals, and fiſh enough both for preſent conſumption and for ſalting: but they are not ſo plenty as at Diego Garcia, probably from the number of ſeals.

"The 25th ſent the detachment on ſhore, hoiſted the Engliſh flag, and ſaluted it with three vollies of muſquetry, on taking poſſeſſion of this cluſter, by the name of GOVERNOR BODDAM'S ISLANDS.

"If a judgment may be formed of the ſoil and productions, theſe may be ſuppoſed much older than any we have viſited; the ſoil is tolerable, and much deeper than at Diego Garcia, or Peros Banhos; conſequently the trees take much deeper root, and grow to a greater ſize: one ſort peculiar to theſe iſlands, which appears to be very good timber, grows the height of 130 feet; many very ſtraight, ſome 4 feet diameter, and 40 feet from the ground to the branches: the young timber is white, but the old decayed trees are of a deep chocolate colour, and the timber perfectly ſound. The harbour is very ſafe, but the bar at the entrance, on which there is not more than 4 fathoms, at high water ſpring tides, makes it impoſſible for large ſhips to enter. There are a number of ſhoals within, which may be avoided by keeping a good look-out from the maſt-head, as the clearneſs of the water makes them eaſily diſtinguiſhed. I did not ſee one rat on any of theſe iſlands, a vermin with which the neighbouring ones are much infeſted; nor do I recollect to have ſeen inſects or reptiles



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of any kind. Beſides the ſea-fowl common to the adjacent iſles, there is one ſort which ſeems peculiar to this cluſter; they burrow in the ground, and make a noiſe more diſagreeable than the jackall: curlews and ſmall plovers are in great abundance; of the latter we ſhot a great number, which were very good. The productions that might turn to account, are the timber which I have been mentioning, cocoa-nuts, and tortoiſe-ſhells; of the laſt but a ſmall quantity could be procured."

To the N. N. E. ½ E. diſtant 10 or 12 leagues from Solomon's Iſlands, are the THREE BROTHERS, three ſmall ſandy Iſlands; and in the interval you meet with the Bank of Rocks and Iſlots ſeen by the *Griffin* in 1749. About 28 miles North of this, lies the SPEAKER'S BANK, ſeen alſo in the ſame year by the *Griffin*, but which takes its name from the ſhip *Speaker*, Captain *James Dewar*, who ſurveyed it in 1763.

Its extent from S. by W. to N. by E. is about 20 miles, being near 6 miles broad at its ſouth part, and decreaſing to 3 and 2 miles towards the north end; with irregular ſoundings from 5, 7, 12, 9, 15, 20, and 26 fathoms; the whole eaſtern ſide has much ſhoaler water, the journal of Captain *Robert Scott*, then an officer on board the *Speaker*, gives the following detail of this Bank.

"11th November 1763, at 6 P. M. ſaw the rocks under the ſhip's bottom; wore ſhip immediately, and had 7 fathoms; kept our wind to ſouthward, and ſoon deepened to 22, 23, and 24, which we continued for 12 miles on a S. S. W. courſe, when ſuddenly ſhoaled to 9. Tacked and hauled our wind to the eaſtward; in tacking deepened to 16, and increaſed gradually to 25; in 2 miles diſtance ſhoaled gradually to 8, 7, and 5. Put the ſhip in ſtays, but rather ſhoaling the water, let go the ſtream anchor, which brought us up in 22, where we rode very eaſy, a light breeze from S. E. with ſmooth water. Found the current ſet Weſt 0 kn. 5f. per hour; at daylight ſent the boats to ſound."

"Latitude obſerved at anchor 4° 52′; longitude from London, per Sun and Moon, 2 hours before the ſhip came upon the ſhoal, and kept on to anchor, 73° 2′ Eaſt."

"We plainly perceived the eaſtern edge to be much ſhoaler than the reſt; I imagine there is much the ſame water on it, as we paſſed over not ſeeing any appearance of breakers any where from maſt-head, or any other danger in ſight; the bottom, which is moſtly coral rock, is clearly ſeen at 14 or 15 fathoms."

Between Chagas Iſland, the Speaker's Bank, and the Iſles to the weſtward already deſcribed, you have ſoundings moſtly from 12 to 30, 40, and 45 fathoms, with ſeveral ſpots with only 7, 6, 5, 4 ½; ten leagues North of Chagas you will find 80, 120, then 90, and 45 fathoms, as you come nearer the iſland. This extenſive Bank is known by the name of BASSAS DE CHAGAS.

To the North of the Speaker's Bank, and near the Line, there are ſome ſmall iſlands, of which Mr. *Dalrymple* has given the following account.

"The *Southampton*, Captain *Lennox*, 26 December 1782, in the paſſage from Bombay to Bengal, fell in with ſome Iſlands in about 0° 13′ North to 0° 11′ North; longitude 73° 22′ to 73° 27′ Eaſt (from Greenwich) by obſervation of the Sun and Moon, in ſight; and a few hours after loſing ſight of them, he ſaw two more iſlands in about 0° 21′ and 0° 34′ South: longitude 73° 22′, and 73° 14′ Eaſt. They were low iſlands, covered with trees, ſuppoſed cocoa-nut trees;

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trees; the land not appearing to be above 20 feet high, exclusive of the trees. They paſſed within 2 leagues of the ſouthernmoſt iſland, which had a white beach, and is remarkable by having only two trees on the ſouth-weſt point. They found a current of 19′ ſouthing and by the Moon's obſervation on the 28th of December, above 30′ eaſting per day." According to Mr. *Dalrymple* theſe iſlands muſt be the ſame as thoſe which were ſeen in 1773, by M. *Rançais Violette*, commanding the ſhip *le Bienvenu*. In the paſſage from Mauritius to Ceylon, being on the 4th of April under the Line, he determined to paſs to the South of the Maldivas, by favour of the weſterly winds which ſtill blow there at this ſeaſon. In holding on that courſe on the 7th of April he deſcried the ſouthernmoſt * Atollon of the Maldivas, whoſe inhabitants came on board. He ranged along the South iſland, which is low and woody, as are alſo the others; he obſerved its latitude 0° 36′ South. After having doubled this Atollon, M. *Violette* ſtood to the N. E. and made Ceylon the 20th of April; this navigator by his departure from Mauritius reckoned himſelf in 69° 14′ Eaſt of Paris, or 71° 39′ Eaſt of London.

Weſtward of theſe iſlots lies a cluſter of larger iſlands, which bear the name of DIEGO RAIS, more properly DIEGO RUYZ, and whoſe poſition as well as configuration and extent appear very uncertain. The *Albemarle*, who ſaw the eaſtern part of them in 1707, places the northernmoſt end in 0° 54′ North; longitude 71° 50′ Eaſt of London. The *Europe*, Captain *Humphry Briant*, ſaw them on the 10th of April of the ſame year, in her paſſage from Bombay towards England; the north extreme W. ¼ N. 15 miles diſtant; the ſouth-eaſternmoſt part S. W. ½ W. 9 miles; ſo that, according to this account, the northernmoſt end will be in 0° 51′ latitude North. The *Europe* made thence to the true Diego Rais, or Iſle Rodrigue, about 10° 20′ Weſt, which added to 63° 17′, the longitude of that iſland, gives 73° 73′ Eaſt of London, for the longitude of the eaſtern part of Diego Ruyz: this longitude being very nearly the ſame as that of the iſlands ſeen by the *Southampton*, might induce to believe that they were only the weſtern part of Diego Ruyz Iſlands.

We muſt not conclude this article wthout obſerving, that as it ſeems to be beyond doubt that the Maldivas extend conſiderably to the ſouthward of the Line, in the Indian Ocean, it is neceſſary to give theſe iſlands as well as thoſe of Diego Ruyz a good birth.

## THE ISLANDS *ADU* AND *CANDU*, LONDON'S BANK, &c.

THESE Iſlands, called alſo *Ady* and *Candy*, were found by the ancient diſcoverers, and their ſituation, ſtill uncertain, has been ſo variouſly aſſigned, that at laſt ſome navigators entirely denied their exiſtence. The Vicomte *Grenier*, among others in his large *Chart of the Archipelago to the North of Mauritius*, in 1776, ſays that the Iſles Adu and Candu are the

* It is almoſt needleſs to obſerve that the name of *Atollon* or *Atoll*, is given to each aſſemblage of the Maldivas, ſeparated by a larger and deeper Channel than any of thoſe that divide the numerous iſlands which lie regularly on the edge, and towards the ſea, or are ſcattered within the ſeveral cluſters.



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ſame with the iſles of Chagas and Pedro (Peros) Banhos; but a little while after acknowledging his error, this learned navigator made a public recantation in his Chart of the *Iſles and Banks, named Adu and Candu, Chagas, &c.* calling then by the name of Chagas, the Bank of ſoundings to the South of Adu and Candu.

"It has been queſtioned," ſays a gentleman we cannot quote too often*, "whether the Iſlands Adu and Candu and the London's Bank, are not a part of the Chagas. On a review of all circumſtances, I am of M. *D'Aprè's* opinion, that they are diſtinct, and lie conſiderably to the eaſtward of the Chagas; both the *Saliſbury*, 1776, and *Pelham*, 1745, who ſaw Chagas Iſland, had many birds in their vicinity; the tracks of thoſe ſhips prove they cannot lie more to the weſtward: the only apparent contradiction I know of, is the *Drake*, 1774; but I find by compariſon of the track taken from a Chart in Governor *Hornby's* ineſtimable collection, with the journal, that they paſſed the London's Bank in the day time, and that they only ſounded during the night, and not in the day."

The *Swift*, 1772, alſo ſounding only in the night every hour, and with ſo little as 30 fathoms, it is not likely they ſhould have got ſoundings; the ſpots of ſhallow water appearing to be of very ſmall extent, and the general depth much more than 30 fathoms.

However, although there be reaſons for ſuppoſing the Iſlands Adu and Candu to be diſtinct from the Chagas, as it is ſcarce poſſible to reconcile the *London*, *Favori*, and *Terrible* to the ſuppoſition of their being the ſame, I do not poſitively affirm that they are diſtinct.

M. *D'Après*, whoſe opinion is followed by Mr. *Dalrymple*, ſpeaks thus of theſe iſlands: As for the iſlands Adu, the moſt recent information we have on this ſubject is from M. *Moreau*, who met with them in the boat *Le Favori*, 1757; by his obſervations of latitude, theſe ſhould lie in 5° latitude South†, but having had occaſion to aſcertain that the inſtrument he made uſe of, gave from 18′ to 20′ too much to the North, it ſhould follow that Adu and Candu ought to be 18′ or 20′ more to the South, and this difference has been the occaſion that Chevalier *Grenier*, who was following the parallel of 5° degrees, could not deſcry theſe iſlands which are ſeen only when you are very near them. As for their longitude, I think it muſt be 75° 30′ (77° 55′ Eaſt of London) and not 73° (75° 25′) as it is ſuppoſed by M. *Grenier*; for in examining the track of M. *Moreau*, he ought to have paſſed in ſight of Chagas, or upon the Bank near it, whereas, on the contrary, he perceived neither of them.

On the ſame day that M. *Moreau* ſaw the iſlands Adu, he deſcried ſome others to the S. S. E. which appear to be the ſame as thoſe that were ſeen by the *London* in 5° 39′ latitude South; longitude 5° 20′ from the eaſtern part of Ceylon, in 6° 39′ ſouth latitude. Theſe are probably the iſlands CANDU, which had been ſeen likewiſe June 30th 1738,

* Mr. *Dalrymple*, in his Memoirs of a Chart of the Indian Ocean, p. 28.

† *L'Abbé Rochon* ſays 5° 6′.

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by the *Duke of Cumberland*, Captain *B. Braund*, in 5° 48′ latitude South; the journal of that ſhip deſcribes them as very low land, near which they had no ground at 100 fathoms.

M. *Moreau* having ſent an officer and eight men to the Iſles Adu, was forced by winds and currents to leave them on theſe iſlands. They landed with great difficulty, the 29th March 1757, and remained there till the 2d June, when they put to ſea in their boat, and came to Cananore, on the Coaſt of Malabar; having previouſly built a Catamaran, to carry the neceſſary ſtore of cocoa-nuts, for their proviſion, as well as to ſupply them with ropes. The iſlands Adu are 12 in number, the largeſt of which is not a league round. They are connected together by a reef, which being dry, at low water, gives an eaſy acceſs to each of them; and they form a circular bay, about 2 leagues diameter, whoſe entrance, 30 fathoms deep, is on the weſt ſide; in the middle of this bay lies a ſmall ſquare bank abounding greatly with fiſh, chiefly of the ſhell kind. Theſe Iſlands are full of cocoa-trees, but have no freſh water, nor any turtle.

Six leagues from the ſouthernmoſt iſlands, or Candu Iſland, the LONDON'S BANK extends about 20 leagues to the ſouthward, with ſoundings from 6 and 7 to 40 fathoms; then no ground at 120, and 90, for 7 or 8 leagues; and afterwards 31, 15, and 12 fathoms for 2 or 3 leagues on the tail of the Bank, in 7° 24′ latitude South. It was diſcovered in 1741, by the *London*, Captain *Bootle*.

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## DIRECTIONS FOR THE PASSAGE TO INDIA BY THE EAST OF MADAGASCAR, WHILE THE S. E. MONSOONS PREVAILS IN THE INDIES.

### DESCRPTION OF THE EASTERN COAST OF MADAGASCAR, FORT DAUPHIN—FOUL POINT— ANTONGIL BAY, &c.

THIS paſſage, which has been known and frequented above 160 years,* is the beſt for ſhips who cannot enter the Mozambique channel before the 15th of Auguſt, on account of the little winds, calms, and variations which prevail there in this ſeaſon, inſtead of the freſh winds they are ſure of meeting with to the eaſtward. In caſe they ſhould have a ſcarcity of water or proviſions, from the length of their navigation, they may eaſily procure thoſe neceſſaries at Fort Dauphin, Foul-point, and other places of the eaſtern coaſt of Madagaſcar.

When bound to this paſſage, after you have doubled the Cape of Good Hope, and

* It was firſt attempted in 1635, by two Portugueſe ſhips belonging to the ſquadron of *Pedro da Sylva* then Viceroy of Goa, the *Noſſa Senhora da Saude*, and the *Santa Catharina*.

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aſcertained the place of your departure, either by the ſight of the Cape land, the ſoundings of Lagullas Bank, or by a good obſervation, you are to ſtand to the eaſtward upon the parallels which we have already mentioned, as far as 46° or 47° 30′ longitude Eaſt of London. Thence ſteering N. E. then N. N. E. (variation and leeway corrected) you come to the 26th or 25th parallel of latitude, in 52° 30′ longitude, which appears a ſufficient caution to prevent the errors of an ordinary navigation, taking care however not to fetch during the night the latitude of 25° 45′, which is that of the ſouthern part of Madagaſcar; on this coaſt there are no ſoundings in the offing, except to the weſtward of Cape St. Mary.

Should you intend to put in at FORT DAUPHIN, which lies in 25°* 5′ latitude South, you muſt fetch the land in 24°, or at leaſt 24° 30′, not to miſs the harbour, as the currents are running towards the South at the rate of 16 leagues in 24 hours. To avoid their effect during the night in approaching Fort Dauphin, if the weather permits and you ſhould meet with a ſandy bottom, the beſt would be to come to an anchor, but if it blows a ſtrong breeze, you muſt remain under ſail. Theſe violent currents are occaſioned by the winds which the French have called *Fort Dauphin's Winds*; they prevail the whole year round to the N. E. and extend about 10 leagues off the coaſt: you begin to meet with them between the 22d and 23d parallels, where they have ſcarce any force; but they grow ſtronger in the 24° of latitude. A ſhip once to leeward of Fort Dauphin's Bay has no poſſibility of coming into the harbour; the mountains, which are exceſſively high in this part of Madagaſcar, are probably the cauſe of theſe local winds.

When you come to deſcry the land in 24°, you perceive a chain of very high mountains†, and in 24° 15′ to 18′, a hummock in the form of a ſugar loaf is diſtinguiſhed amidſt ſome ſmall hills near the ſea ſide. Then ranging along the ſhore at a 1½ league diſtance, you diſcover, through St. Luce's Iſlands, ſome ſmall rocky ſhoals under water, a little removed from the ſhore, and between 24° 35′ and 24° 45′ latitude South; continuing to ſail along at the ſame diſtance, a point will come in ſight, S. W. by W. *by compaſs*, appearing at firſt to ſtand by itſelf, with two hummocks more flat than round; and after this another, with hummocks of the ſame ſhape: theſe two points have been often taken for point Itapere, which is the next or third in order, having ſharp pointed hummocks; when you come near the ſecond point, ranging along the coaſt at a league's diſtance, there are ſhoals, ſome of which lie 3 quarters of a league from ſhore, therefore it is adviſeable to keep an offing of a 1½ league.

*Itapere Rock*, whoſe breakers are always ſeen, is the ſureſt mark to diſtinguiſh the point, from which it is diſtant about one mile to the South, but there is no paſſage between; theſe breakers ſometimes riſe ſo high, that you ſhould think, at times, it is a ſhip under ſail. Obſerve alſo that the whales, which abound along this coaſt blow up the water juſt in

* Mr. *Le Gentil's* obſervation made in 1761, gives 25° 1′ 4″ for the latitude of Fort Dauphin, and 46° 35′ for its longitude Eaſt of London.

† The perpendicular height of this chain is ſuppoſed to be near 3690 yards above the level of the ſea. LE GENTIL's *Voyage dans les Mers de L'Inde*, t. ii. p. 396.

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the ſame manner as you ſee it breaking upon the rock, and without a good look-out, this ſimilarity may occaſion a miſtake.

Two leagues W. S. W. *true North*, of this Rock lies Fort Dauphin. The coaſt between Itapere Point, and that on which the Fort ſtood, forms a cove, or bight, named *Tolonghare* by the natives, and *Anſe Dauphine* by the French who were formerly ſettled there, and of whoſe fort the remains are ſtill to be ſeen. The ſhips generally go within the elbow made by the point.

After having paſſed Itapere Rock $\frac{1}{4}$ of a league diſtance, you are to ſteer for Fort Dauphin's Point, which is incompaſſed with a reef ſtretching about a cable's length, and within which is a good anchorage. Point Itapere is to bear E. 5° or 6° S., *by compaſs*, and the extreme of the breakers neareſt to the anchorage S. E. by E. The larboard anchor is to lie to the north eaſtward in 7 fathoms, ſandy ground; the ſtarboard anchor in 6 fathoms, having 28 or 29 feet water under the ſhip; a third anchor is carried to lie to the north weſtward. When there is not ſufficient day-light to fetch the road, after you have doubled Itapere Rock, you may anchor on the cove, if the weather admits, obſerving that the quality of the bottom is not the ſame every where.

Water is got at the landing place by digging into the ſand; it will ſerve for the ſtock, and for cooking the victuals; but at a ſmall diſtance in land there are plentiful ſprings of very good water.

This country is under the government of ſeveral chiefs, with whom you muſt always behave with caution, and the ſame conduct is to be obſerved in all the parts of Madagaſcar where you may have occaſion to land.

If you ſhould prefer the landing at Foul Point, on account of its greater facility and better anchorage, to that at Fort Dauphin, let the following directions be obſerved. After you come up to the 25th parallel, without ſeeing the land, nor any of the tokens which indicate its vicinity, you are to ſteer North, in the day time, and N. N. E. during the night, as far as 18° 20′ latitude, where it is neceſſary you ſhould make the land to get a ſight of PLUMBS ISLAND (*l'Ile aux Prunes*). This is an iſlot in 18° 7′ latitude, South 6 miles N. N. E. of Tamatave, and diſtant about 2 miles from the neareſt part of Madagaſcar: the trees with which it it covered make it eaſily diſcernible 5 leagues off.

Three leagues to the N. N. E. of Plumbs Iſland there is a rocky bank with breakers, and a league $\frac{1}{2}$ farther on the ſame Rhumb, a ſhoal with 3 fathoms water on it; one league to the N. N. E. of this there is another with 4 fathoms: theſe dangers are only one league diſtant from the ſhore.

The land of Madagaſcar from Plumbs Iſland to Foul Point, is of a moderate height, uneven and woody: it riſes afterwards gradually, and afar off a double and treble land is ſeen of a great height; the ſhore is a white ſand lined with breakers, which run off to ſea 2 or 3 cables length. When Plumbs Iſland is bearing N. W. *by compaſs*, about 2 leagues diſtant, you perceive, on the north ſide, a ſmall hill nearer the ſhore than the others, and forming two Paps*; they are called the *Paps of Natte*, from the village in

* Theſe inland mountains, called alſo *Foul Point Paps*, and which are the mark for this place, lie about 15 leagues to the weſtward. There are four of them, but in coming from Plumbs Iſland, two only are ſeen.

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that quarter, where the Blacks hoiſt often a white flag. Several veſſels have miſtaken this place for Foul Point, which lies 3 leagues farther North, but this error will be avoided if you obſerve that Plumbs Iſland is viſible from Natte, but cannot be ſeen from Foul-Point; if therefore you bring it (Plumbs Iſland) to bear S. 30′ W. *by compaſs*, when you ſink it in the horizon; you may then ſteer N. 15° Eaſt for Foul Point, which bears in that direction from you.

The above directions muſt by followed only during the ſeaſon of the S. E. winds, for in the ſeaſon of the N. E. winds you are to ſtand directly for the parallel of Foul-Point, without making the land to the ſouthward of that place, which would expoſe you to miſs the anchorage.

The bight of Foul Point, where ſhips anchor, is formed by a large reef, which begins on the ſhore, a mile below the village, and extends afterwards $\frac{3}{4}$ of a league to the N. N. E. *true North*. You muſt come no nearer this reef than a $\frac{1}{4}$ of a league, and range it along, ſo as to double its northern point at a good cable's length: you diſtinguiſh the breakers, but they ſhew leſs at high water, and with a freſh breeze. Thence keeping the wind, you come to an anchor under ſhelter of the reef in 6 fathoms, ſand and mud. The north point of the reef will bear E. by N. and E. N. E. *by compaſs*, the ſouth point of the bight S. by W. 5° W. the village S. W. 1 mile; the land farther North towards Manivoul N. by E. 6 or 7 leagues: you moor acroſs E. N. E. and W. S. W. if you are to ſtay there ſome time, it is requiſite you ſhould have a third anchor to the N. W.

Within the reef there is a deeper receſs, or hole, where large ſhips can enter, the depth being 6 or 7 fathoms; but it is not very ſafe, and the cables are expoſed there to be cut by the rocks.

The village of Foul Point has been found by repeated obſervations to be in 49° 48′ Eaſt of London, latitude 17° 40′ North. Plenty of good proviſions may be procured at this place, but the harbour is full of ſhoals, over which the boat cannot go at low water; obſerve alſo that Foul Point is to be frequented only in the beſt ſeaſon, the reef affording no ſhelter but in ordinary weather. They have here, as we obſerved above, two ſorts of winds ſucceeding each other periodically, *viz.* from South to S. E. between April or May, and October or November, and the N. E. winds during the reſt of the year. This kind of Monſoon is prevailing in all theſe ſeas as far as the parallels of Mauritius and Bourbon, and a great way beyond them.

A certain ſign of land in the ſeaſon of the N. E. winds, and even during the greateſt part of the year, is a large bank of clouds very black and very even, which gathers during the day, and extends all over Madagaſcar, the ſun being hid behind it. When ſeen from the land this cloud has about 10 degrees elevation above the Horizon; it can be perceived at a diſtance of 12, 15, and 20 leagues at ſea, and gives a ſure notice of your approaching the land.

We are now going to deſcribe St. Mary's Iſland, and Antongil Bay, where veſſels may alſo anchor.

Thirteen leagues and a half N. N. E. 5° E. *true North*, from the road of Foul Point,



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is the ſouth point of ST. MARY'S ISLAND, in 17° 5′ latitude South. The iſland, which the natives call *Noſſi Ibrahim*, or Abraham's Iſland, extends to N. E. by N. as far as 16° 33′, where you meet with its north point. There is a fine channel between it and Madagaſcar, through which ſhips of all ſizes may paſs; the narroweſt part, which is towards the middle of the Iſland, is about 5 miles broad. From Laree Point a bank ſtretches off about a mile to the E. N. E. with only 2 or 3 fathoms on it; Lokinſin Point is alſo ſurrounded with a reef, but in the middle of the channel the depth of water is from 40 to 45 fathoms

The ſouth point of St. Mary's is formed by a flat iſlot, ſeparated from it by a very ſmall channel, and round which is a reef that runs about ½ a league to the ſouthward. The whole eaſtern part of St. Mary's is likewiſe ſurrounded with breakers, and in ſome places off this ſouthern part, you have from 18 to 20 fathoms water.

On the weſt ſide, about 2 leagues from the ſouth point, lies a bay near 3 miles broad, N. E. and S. W. and at the bottom of it an iſlot named *Quails Iſland*, near which ſmall veſſels can find ſhelter. The French, in 1750, had there a ſettlement, which they were forced to abandon by the badneſs of the climate and of its inhabitants. In order to moor in the bay, you are to range along near the ſouth land of St. Mary's, in 18 or 20 fathoms, and after having doubled a huge rock that ſtands near the ſouthweſt point, you will drop your anchor to the true north of Quail's Iſland, in 18 or 20 fathoms; from this birth Point Laree bears *true North* 4 leagues off.

When you are bound to Antongil Bay, which lies to the North of St. Mary's Iſland, you are to keep mid-channel between the ſaid Point and the land of St. Mary's; then you ſteer N. by E. *true North*, which carries you to the opening of the bay; you may likewiſe, when you come from the offing, go to Antongil Bay, in paſſing to the eaſtward of St. Mary's Iſland.

ANTONGIL BAY, named *Manghabes* by the natives, takes its name from *Antonio Gil*, a Portugueſe Captain, by whom it was diſcovered. It is 13 or 14 leagues long from North to South, and 7 or 8 broad, N. E. half E. and S. W. half W. between Cape Bollones and Point Baldriſh. In entering this bay, you may coaſt along which ſide will ſuit beſt the direction of the breeze; the depths of water, as well as the quality of the ground, are pretty near the ſame at three quarters of the bay, where they decreaſe to 30, 25, 20, and 15 fathoms.

In the bottom of the bay there are ſeveral iſlots, the principal of which, called *Maras*, or Iſle *Marotte*, which has not more than 18 or 1900 yards in extent, from N. E. to S. W. is about one mile diſtant from the neareſt part of the coaſt: it lies in 15° 25′ latitude South; there are four other iſlots ſmaller than this to the South of it, the fartheſt of which is only 2 leagues off. The common anchorage is to the northward of Iſle Marotte, at a muſquet-ſhot, over againſt two ſmall ſandy coves, in 11 or 12 fathoms: wood and water are got here with great convenience, and you are ſafer in your tents than on the main iſland, where you muſt trade for proviſions. The river lies true N. N. W. from Marotte Iſland; boats may enter it, and the water riſes 5 feet in the new and full Moons.



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. You come out of Antongil Bay to go to the northward, in ranging along the eaſtern coaſt, availing yourſelf to that end, of the ebbs and breezes, and ſteering towards Baldriſh point. South of this point lies the ſmall Iſland of *Bebenter*, to the ſouthward of which ſhips anchor that are trading in this place: the ſhore, which extends 2 leagues eaſtward, is lined with a reef ſtretching 2 miles in breadth to another iſlot called *Mopatte*, from whence the coaſt runs 4 leagues N. E. by N. *true North*, then to N. N. E. 4° N. as far as Cape Eaſt, that lies in 15° 15′ latitude South. As it is alſo lined with reefs which in ſeveral places project about 2 miles into the ſea, it is neceſſary you ſhould make an offing of 1 league at leaſt. From Cape Eaſt the coaſt lies N. by W. 3° W. as far as Vohemare Bay, in 13° 26′ latitude South; then it runs in the ſame direction to CAPE AMBRO, or *Natal*, the northernmoſt point of Madagaſcar, in 12° 5′ latitude South.

An obſervation which is not to be omitted concerning the eaſtern coaſt of Madagaſcar is that Fort Dauphin is generally healthy at all times; that from Foul-Point, which is unhealthy only in a bad ſeaſon, the country is more ſo as you go up northward: and to preſerve your crew from the diſeaſes prevailing there during the bad ſeaſon, you muſt as it draws near, and from the end of November, let none of the people lie aſhore, and order every body to be on board before night.

When veſſels do not put in at Madagaſcar, and ſail only to the eaſtward of that Iſland, it is requiſite nevertheleſs that they ſhould get the ſight of it, to aſcertain the place they are at, and continue their courſe to Iadia with ſafety. Thus, after having fetched the 25th parallel of ſouth latitude, as we have ſaid already, if, in ſteering North during the day, and N. N. E. in the night time, a ſhip ſhould find herſelf in 15° latitude South without ſeeing Madagaſcar, which would be the effect of a difference towards the Eaſt; then ſhe ſhould ſteer W. N. W. *by compaſs* till in ſight of Madagaſcar, and having made the land to 4 leagues diſtance, ſhe ſhould coaſt along as far as Cape Ambro.

The currents in rounding this Cape, take their run very rapidly to the weſtward; ſo that ſhips bound for Querimba or Mozambique, round the north end of Madagaſcar, are to expect a difference, towards the Weſt, proportional to the time employed in the paſſage from Cape Ambro: ſeveral have found this current of 20 leagues velocity in 24 hours.

As to the ſhips who are ſailing to the Indies, after they have made Cape Ambro, they muſt ſteer North without any eaſting, and continue in this manner till 5° latitude South, then N. E. as far as the Line, and thence direct their courſe as we have already mentioned.

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## DESCRIPTION OF THE COAST OF *AFRICA*, FROM THE EQUINOCTIAL LINE TO CAPE GUARDAFUI, AND ISLE OF SOCOTRA.

FROM the River dos Fugos, ſituate under the Equinoctial Line, the coaſt extends 27 or 28 leagues to Brava, and then inclines to the N. E. 3 or 4° Eaſt as far as Cape Baſſas. The firſt place, inhabited by the Arabs, is BRAVA or *Barva*, in 1° 15′ latitude North

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North. This land, covered with very little wood, is known by 4 ſteep bluffs of white ſand; on the ſhore there are two reefs with breakers. MAGADASHO, at the mouth of a large river, is the chief place on this coaſt, in 2° 30′ latitude. The land appears there higher, with ſeveral buildings like towers, which are Moſques or Pagodas. One league from ſhore there is no ground, but you are not to approach it nearer than 3 or 4 leagues in ſailing for Cape Baſſas, ſteering to the N. E. in the day time, and N. E. ½ E. during the night.

The latitude of CAPE BASSAS, ſo called on account of the reefs which ſurround it, is about 4° 50′ North; the land is even and ſteep, and projects more in the ſea than the reſt of the coaſt; the reefs upon which the ſea breaks, with a high wind, extending 2 or 3 leagues off, you muſt be very cautious how you come near them in the day-time, and muſt not approach them in the night nearer than 5 or 6 leagues, The land to the northward lies then N. N. E. it is likewiſe even and ſteep as far as the 7th degree of latitude, with ſome little thickets, and may be deſcried at the diſtance of 9 or 10 leagues. In coaſting along this part ſeveral bights are ſeen, of which we have no account; you are to ſail along in the day-time only; during the night, on the contrary, it is neceſſary to ſteer a quarter of a point wide of it.

In about 8° 30′ is ſituated BANDEL D'AGOA, or *Negro Bay*, whoſe ſouth point is remarkable by a bluff called Morro Cobir.

CAPE DELGADO lies 1° 20′ farther North, and 4 leagues to the ſouthward of it is ſeen another point; the land between theſe two can be perceived 12 leagues off. It is very even at the top, ſteep, and has white ſpots along the ſea ſide. The chief mark to know this cape in coming from the ſouthward is, that the coaſt ſeems to diſappear, and forms a large bay, which muſt not be entered without the utmoſt precaution, not only on account of its being unknown, but becauſe with S. E. winds it would be very difficult to come out.

Being off Cape Delgado, 3 or 4 leagues, CAPE DORFUI may be ſeen N. by E. it appears when you come from the South, like an iſland ſloped to ſeaward; to the weſtward of this is a mountain like a barn, joined with it by low ground, ſo that at a diſtance they appear ſeparated. The land to the northward of Cape Dorfui cannot be perceived till the cape bears N. N. W. This cape, which is very high and ſteep, is in about 10° 35′ latitude North.

From Cape Dorfui to that of Guardafui, the courſe is North, diſtance 26 or 27 leagues. Between the two, and cloſe within Cape Dorfui, is a great bay; thence the coaſt runs N. N. E. as far as Cape Guardafui. Theſe lands are very high, being ſteep white cliffs, rugged at the top; they appear ſo within half a league to the ſouthward of Cape Guardafui, from whence this extremity, as it deſcends, ſeems to form ſeveral ſteps. The cape itſelf is low land, but ſteep towards the edge; its latitude is found to be about 11° 45′. Obſerve that this coaſt is very bold, but you have ſoundings, from 20 to 45 fathoms, 5 or 6 leagues from ſhore.

The land of CAPE GUARDAFUI, which is generally ſuppoſed to be the eaſternmoſt point of Africa, is certainly more remarkable than Cape Dorfui, to which ſeveral Charts have given this diſtinction. Its latitude is about 11° 50′ North, but the longitude is not ſo well aſcertained. M. *D'Après* places it in 52° 38′ Eaſt of London; M. *Le Gentil* in 49° 45′



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45′, and M. *Dalrymple*, from obſervations made in 1774 by himſelf, on board the *Swallow* ſloop of war, in 51° 0′, which becomes a medium between the two French obſervers.

Above 40 leagues eaſtward of Cape Guardafui lies the Iſland of SOCOTRA. The body of this iſland lies in 12° 25′ North; it is about 27 or 28 leagues in length from E. by S. to W. by N. 6 or 7 broad, and very mountainous. When the eaſternmoſt point of the high land bears either North or South, it makes not unlike a dolphin's noſe; and thence trenches away to the eaſtward for about 3 miles, till it terminates in a low point, from which a ledge of rocks, even with the water, runs to the S. E. about a league.

There are two anchoring places; that for the eaſterly Monſoon is at the weſt-ſouth-weſt part of the iſland, oppoſite one of its coaſts, which extends about 10 leagues S. E. and N. W. To ſail to this anchorage, if to the eaſtward of the iſland, coaſt along ſhore in 20 fathoms, as far as the weſt-ſouth-weſt point of the iſland, which is high and bluff: by keeping that depth, the bottom is ſandy; but in 15 fathoms there are rocks; ſo that you get no anchoring there, in caſe of a calm, without the hazard of loſing your anchor. Having paſſed this high point, keep in from 15 to 25 fathoms; and when you are oppoſite a high round hill, in the middle of this part of the coaſt, near which there is another ſmaller ſplit in the middle, and this latter is bearing North, you may anchor in 18 fathoms, ſandy ground. Here you can get proviſions, but the water is unpalatable; better is to be had in ſome places thereabouts, though with great difficulty.

The Bay of *Tamarida*, on the north ſide, where the Prince or Viceroy reſides is the moſt convenient place in the iſland for refreſhments, but the anchorage is not good, being too near the ſhore. This place is known by a point of ſand, which makes the eaſtern ſide of the bay: after you have doubled it you may perceive the town, oppoſite which you anchor, ½ a league from the ſhore in 10 fathoms, ſand and coral. The water is very good and the proviſions cheap. On the north coaſt coming from the eaſtward, as you ſail towards Tamarida Bay, you may obſerve two white ſand hills, the weſternmoſt of which is much the largeſt: the town lies about 4 miles to the weſtward of this: under the higheſt and craggieſt part of the land, you may anchor about 2 miles off ſhore in 9 or 10 fathoms, the town bearing South or S. by W.

"When Socotra," ſays Captain *Blake*, "bore from the W. ½ N. to S. W. which was the eaſternmoſt end of the iſland, two ſand hills were ſeen, which are very remarkable We made ourſelves to be in latitude 12° 47′ North, when the iſland bore from the S. S. W. to weſtward, off ſhore 3 leagues, and could get no ground with 70 fathoms line. About 10 leagues to the weſtward of the above ſand hills, you will ſee two others, with a low flat point running from the weſtward of them; and above this point lies the town of white buildings, called Tamreed or *Tamarida*: after you are paſt the point you have 30 fathoms, about 5 leagues from ſhore, and gradual ſoundings to 8 or 6. The town bears S. W. by S. with very high land over it, in notches like chimnies. The water here is very good, and runs from the mountains into a ſandy valley among date trees; you cannot miſs finding it, being only ¼ of a mile from the town. The natives are very civil to ſtrangers, but very poor; and the only commodity to trade with them is rice, for which we had in exchange

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exchange ſome cows, goats, fiſh, dates, &c. we got alſo good aloes, and ſome parcels of Sanguis Draconis."

About half way between Cape Guardafui and Socotra, you meet with the ſmall Iſland of *Abdalcuria*, remarkable by its two hummocks; and to the Eaſt of it, nearer the main land, with the two Iſles called the *Brothers*; five leagues off the north-weſt end of Socotra lie the *Saboyna* Rocks, called alſo the *White Rocks*, which at a diſtance appear like two ſhips under ſail.

## DESCRIPTION OF THE COAST OF AFRICA

### TO THE WESTWARD OF CAPE GUARDAFUI, AND OF THE COAST OF ARABIA, FROM CAPE ADEN TO THE STRAITS OF BABELMANDEL.

FROM THE *FRENCH NEPTUNE ORIENTAL.*

FROM Cape Guardafui to Mount Felix the courſe is W. by N. a little northerly, 14 or 15 leagues. The coaſt continues high and ſteep for 9 or 10 leagues; the reſt as far as Mount Felix is a barren plain, and uneven along the ſea-ſide; but within land are high mountains. This ſhore is ſafe and without danger; nevertheleſs in the night, ſteer a little wide of the two Capes, on account of a point of land projecting between them.

MOUNT FELIX is a ſteep and high cliff upon a low land, which makes it appear like an iſland when you come from the eaſtward: in clear weather it may be ſeen 15 or 16 leagues off.

Having paſſed Mount Felix, you may ſee the low land continue along the ſea ſide for about 5 leagues to the S. W. Thence the land is very high for 5 or 6 leagues, and terminates in a plain of a middling height, which lies W. by S. about 2 leagues. From the weſt end of this plain to Cape St. Peter, the diſtance is about 6 leagues. This laſt coaſt is high land, bordering with a chain of rugged mountains, whoſe extremity is what is called CAPE ST. PETER and about 2 leagues from this cape, is ſeen by the ſea ſide a white ſpot, looking like a ſmall ſandy bay. Mount Felix and Cape St. Peter lie E. N. E. and W. S. W. diſtant 16 or 17 leagues.

From Cape St. Peter to Mette Iſland, the courſe is W. by S. about 21 leagues: the coaſt between them forms a bight, where the land is of a middling height and very uneven, but farther in are high mountains,

About 3 leagues to the eaſtward of Mette Iſland, is a peninſula of a moderate height, and covered with hummocks which appear ſeparate; between this peninſula and the iſland there is a bight, whoſe ſhore is not high, but the ridge of lofty mountains continues within land. METTE ISLAND, which lies very near this peninſula, is of a middling height and covered alſo with ſmall hummocks, the higheſt of which, in the centre of the iſland, is ſhaped at the top like a Dutchman's cap: the interior part of this iſland and of the whole coaſt appears extremely dry and barren.



From

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From Mette Iſland to BURNT ISLAND, called alſo *White Iſland*, and *Bird Iſland*, the courſe is weſterly 19 or 20 leagues, the main land between the two moderately high. This iſland, which lies about 3 leagues from the continent is nothing more than a very high rock that may be ſeen 10 leagues off; the dung of the birds which cover it makes it appear white. When it bears S. W. it appears very round, and encompaſſed with other little rocks, but when bearing South it ſeems to extend ½ a league Eaſt and Weſt.

From Burnt Iſland the coaſt continues to the weſtward, and very mountainous within land; but as it is ſeldom frequented, no good account can be given of it; for the ſhips generally leave the African coaſt when they have reached Burnt Iſland, and ſtretch over to that of Arabia, near Cape Aden.

CAPE ADEN, in coming from the weſtward, looks like a high Iſland, cragged at the top, and upon a nearer approach reſembles two iſlands; it lies in about 12° 45′ latitude North, and when bearing N. E. appears like a very rugged mountain, its ſouthern extremity being lower than the northern; to the N. W. of this cape there is a mountain about the ſame height, equally rugged, high on the ſouth-eaſt ſide, and low on the north weſt, and between the two, little hillocks are ſeen reſembling huge rocks, which being on a low land imperceptible, at the diſtance of 8 or 9 leagues, appear ſeparate.

From Cape Aden to the low point of CAPE ST. ANTHONY, called Cape Arimora by the Arabs, the courſe is W. by S. 19 leagues; the land between the two is low, with ſome ſandy downs till within 6 leagues of this point, where another large point appears, which is formed by a high mountain inclining to the weſtward and ſtretching away inland. This large point is very rugged, and Cape St. Anthony is low, but the ridge above mentioned makes the cape appear high, when you come from the ſouthward.

If by contrary winds you are obliged to turn it along the coaſt, come no nearer than 13 fathoms, nor ſail above 30 from it, ſand and coral rocks, that you may anchor in caſe of a calm; otherwiſe you might be expoſed to the violence of the tide, which ſometimes runs very ſtrong, and be thereby driven upon the Abyſſinian Coaſt, towards the Gulf of Zeyla, where you would be in danger of being loſt. There is a ſmall ſhoal off the low point, but it does not run far out, and by keeping in the above depth you have nothing to fear.

From the low point of Cape St. Anthony to *Bab-el-Mandeb*, commonly called BABEL MANDEL, and by the ſailors THE BABS, the courſe is W. by N. northerly, 15 or 16 leagues. Between them the land is low along ſhore, forming a deep bay, which makes the cape appear detached; and the ridge of mountains above mentioned extend to the N. W. till 5 or 6 leagues from Cape Babel Mandel; this cape terminates in a moderate height, and like a gunner's quoin, riſing gradually from North to South, the peaked part to the northward, and blunted again a little more northerly.

In foggy weather, care muſt be taken to avoid entering this bay, as ſeveral ſhips have been loſt there, thinking to ſail into the ſtraits of the Red Sea, and miſtaking Cape Babel Mandel for the iſland of the ſame name. Nevertheleſs it is eaſy to avoid the miſtake, this cape

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cape making as above deſcribed, and the iſland being low and ſmooth, with its two extremes alike from the middle.

Between the iſland and the cape is the LITTLE STRAIT, ſo called to diſtinguiſh it from that to the ſouthward. This ſtrait is 4 miles broad; there is no danger if you obſerve to keep rather nearer the iſland than the cape, in irregular ſoundings from 20 to 10, 14 and 9 fathoms, coarſe ſand, and now and then 7 fathoms upon a ſmall bank, where there is no danger.

Having paſſed this ſtrait, if there is not time to get to Moka by day-light, it is better to anchor than to run the hazard of overſhooting it: in this caſe you muſt ſhut up the ſtraits, and anchor a little to the northward of Cape Babel Mandel, where the water is always very ſmooth; whereas if you anchor with the mouth of the ſtraits open, you ſtand a chance of loſing your cables and anchors.

Either coming in or going out of the Red Sea, it is better to paſs through the ſtrait than to the ſouthward of Babel Mandel Iſland, becauſe in a calm you are there very often toſſed up by the currents, and no anchoring ground is to be got but very near the iſland.

## THE RED SEA, OR GULF OF ARABIA.

### INSTRUCTIONS FOR COMING INTO THE RED SEA, AND GOING TO MOKA,

WITH A DESCRIPTION OF THE

### AFRICAN AND ARABIAN COASTS.

By an ENGLISH OFFICER.

IF you are late in the ſeaſon, that is in the latter end of April or beginning of May, you muſt avoid coming near Socotra, for you have a very ſtrong current which ſets to the northward about that iſland, and between it and Cape Guardafui; ſo that it is better not to make it, but to keep in 10° or 11° latitude till you have paſſed to the weſtward. We may quote the following example: the *Stratham* Indiaman ſailed from Surat 26th of March, 1752, in company with the *Dadala* country ſhip; they parted company on the 12th April, in 13° 12′ North, and on the 14th made the eaſt end of Socotra; continued working in ſight of that iſland 13 days, with the wind from South to W. S. W. having a ſtrong current againſt them. The *Dadala* ſtood to the ſouthward of 3 degrees, then met with a fair wind, and had a quick paſſage, whilſt the *Stratham* was frequently becalmed and in ſome danger of loſing her paſſage.

If you are apprehenſive of the Monſoon having ſet in, and ſhould meet with it, you muſt ſtand to the ſouthward, and even croſs the Line to 8 or 10 degrees South, where you may depend on meeting with wind to run down your weſting. You muſt endeavour to make the land about 10° 30′ North. If the S. W Monſoon is ſet in, as it will be neceſſary

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ſary to round Cape Guardafui very cloſe, the ſhore between it and Mount Felix (as we have ſaid before) is bold, ſo that if occaſion requires you may come within a mile of it without any danger, A little to the eaſtward of Mount Felix bearing W. by S. diſtance off ſhore about $\frac{1}{2}$ mile, you have ſoundings at 35 fathoms, ooze and ſand, and from 30 to 20, ſandy ground with coral, within a $\frac{1}{4}$ mile of the point. About W. S. W. from Mount Felix, diſtance 3 leagues, lies a long ſandy point, between which and the mount you have ſhoal water from 6 to 10 and 14 fathoms, ſo that you muſt keep your lead going, not coming nearer than 2 miles of the ſhore, till you are paſſed the point, when you may again haul inſhore out of the way of the current.

As you run along this ſhore, about 33 or 35 leagues to the weſtward of Cape Guardafui you will ſee the river St. Pedro, or St. Peter, in the bottom of a deep bay, and to the weſtward of it 3 iſlands, not far from the ſhore. The next thing remarkable is Burnt or White Iſland (ſee the preceding ſection), which is about 80 leagues weſtward of the cape, and about 4 miles from the main: when it bears South or S. S. E. the eaſt end makes like 3 ſugar loaves; and if you are about 4 or 5 miles off, with the beforementioned bearings, you will ſee a ſmall rock at a little diſtance from that end.

If the wind is favourable you put off from this place, for Aden, which bears about N. W. diſtance 55 leagues. About 3 leagues from Aden you have good ſoundings in 40 fathoms. Your courſe towards Cape St. Anthony, is between W. by S. and W. S. W. keeping in about 30 fathoms water; but take care as you paſs that cape not to come within 3 leagues of the ſhore, on account of a dangerous bank; when the body of the cape bears N. N. W. diſtance about 3 leagues, you will ſhoal your water ſuddenly from 24 to 15 fathoms at one caſt, and in ſome places but 3 fathoms, foul ground. in paſſing that cape you have regular ſoundings, from 30 to 35 fathoms, along ſhore till you bring it to bear E. N. E. when at once you fall into deep water, having no ſoundings at 40 fathoms, but hauling up for a while N. N. W. you will get them again at 34, 29, and 27 fathoms. If you are ſailing here in the night, and deepen your water ſuddenly, you may depend upon being 8 leagues from Babel Mandel.

Captain *Foot* of the *Latham*, who went from Surat to Moka in 1758, expreſſes himſelf as follows in his journal.

"Sailed from Surat 8th of April, and arrived at Moka the 12th of May; being pretty late in the ſeaſon, went to the ſouthward as far as 9° 50′ and 10 North, and met with light winds variable, but moſtly from the N. E. and S. E. As we drew nigh Cape Guardafui, and to the weſtward of Socotra, found very ſtrong northerly currents of 51 and 20 miles in the 24 hours. We made the land 11° 12′ North, and that day had a ſet to the northward of 34 miles, and rounded the cape very cloſe. From the cape to the ſtraits of Babel Mandel, found the preceding inſtructions very juſt, particular, and true. The *Gungava* country Ship, who left Surat the day after us, and made Socotra in her paſſage, joined company with us off Cape St. Peter; we found ſhe went much better than the *Latham* in light winds, which might be the reaſon of her having a better paſſage."

From

From the entrance of the Straits of Babel Mandel to MOKA ROAD the courſe is N. N. W. 13 or 14 leagues; the land is low along the ſea ſide, but within are high mountains. Keep about 1 ½ or 2 leagues off ſhore in 9, 10, and 12 fathoms water. On the beach you may perceive a little ſand hill, which is ſomewhat nearer to Moka than to Cape Babel Mandel. The approach to the town is known by the date-trees which extend about 2 leagues to the ſouthward along the ſhore; theſe are the only trees to be ſeen along this coaſt, which is very barren. When you are hereabouts, come no nearer than 13 fathoms, in order to avoid a bank ſurrounding the road on the ſouth ſide, with only 2 fathoms on it; and which is the more dangerous as it is ſteep to, for from 10 fathoms you ſuddenly come to have 3 or 2. You keep in 13 fathoms till the minaret or ſpire of the great moſque is brought to bear S. S. E. when you may haul in for the road, and anchor in what depth you think proper: you have a good birth with the following bearings; namely the North Fort S. E. by E. The South Fort S. by E. The Great Moſque E. S. E. off ſhore 3 or 4 miles.

## DIRECTIONS FOR SAILING FROM CAPE GUARDAFUI TO BABEL MANDEL, AND THROUGH THE STRAITS;

By Captain NORTON HUTCHINSON, of the DODDINGTON, 1753.

"AFTER making Cape Guardafui in March, April, or May, the African ſhore, which is very bold, muſt be kept cloſe aboard. About W. ¼ N. 16 leagues from the Cape is Mount Felix, that runs out from the land conſiderably into the ſea, W. N. W. ½ W. Forty-four leagues from the mount, ſtands a remarkable hill appearing flat on the top, with one incloſed round it, and which ſeems to be an iſland; the courſe from this to the White Rock, or White Iſland, is Weſt ſoutherly 20 leagues, ſtill obſerving to keep within 3 or 4 miles off the ſhore. This iſland is very craggy, and I judge it to be about 2 leagues off the continent; it is the mark to haul over to the Arabian ſhore, N. W. or N. W. by W. with which you will make the land about Old Aden; we falling in with it a great diſtance, and overſhooting it before morning, could not make any obſervations on this land.

"The firſt mark for the STRAITS OF BABEL MANDEL, is Babel Mandel Point, which makes like a quoin, and is joined to the main by an iſthmus of low ſand, forming a deep and dangerous bay; I have heard there are ſometimes ſtrong inſets into it; and you are liable to be deceived here, the eaſternmoſt point being high and craggy, and the iſthmus at the bottom of the bay not to be diſcerned till very nigh, and appearing much like the Straits mouth, by the moſt general deſcriptions; many ſhips have made this miſtake, one of which very lately and very fatally.

"To avoid theſe dangers, keep Babel Mandel Point, juſt open with the ſtarboard bow; and in 17 or 18 fathoms water, ſtand towards Babel Mandel Iſland, which with the point

 makes

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makes the ſtraits. This iſland is but low, and not well ſeen above 3 leagues diſtance upon the main; there is a very remarkable piece of land on the top of a hill, called *Chimney Hill*, from its ſhape; when this bears N. E. by E. eaſterly, you will firſt diſcern Babel Mandel Iſland; the courſe through the ſtraits is between N. W. and N. W. by W. keeping above two-thirds over to the iſland ſide; but your lead is your beſt guide; the leaſt water you will have, with this courſe, is about $6\frac{1}{2}$ fathoms, and that when you are abreaſt of the centre of the iſland.

"The beſt mark to know when you are clear of the knowl of ſand, and when to haul in for MOKA ROAD, is the higheſt Moſque bearing E. by S. or ſhut in with the *Neat's Tongue*, about a ſail's breadth, and not to come into leſs than 5 fathoms, there being great overfalls; when you have theſe bearings, haul in Eaſt, or E. by S. till you bring the South Fort E. S. E. and you will have good anchoring in 5 or 6 fathoms water, about 3 miles from the town.

"I have made the following remarks on the ſoundings, &c. in the ſouthern channel, going out of Moka Road.

"The northernmoſt fort E. by N. $\frac{1}{2}$ N. The ſouthernmoſt fort E. S. E. $\frac{1}{2}$ S. The great Moſque E. by S. depth of water $2\frac{1}{2}$ fathoms, which deepens to 4 and $4\frac{1}{2}$; then the northernmoſt fort E. by N., and the ſouthernmoſt E. by S. the great Moſque Eaſt: at theſe laſt bearings, the ſouthernmoſt fort almoſt the middle of the Neat's Tongue, the great Moſque a little to the northward of the governor's houſe, ſteer away S. E. till the northernmoſt fort is E. N. E. depth $6\frac{1}{2}$ fathoms; ſtand right in for the fort, ſhoaling gradually in $\frac{1}{4}$ leſs than 3, and then deepen to $3\frac{1}{2}$ fathoms.

"Steered off Weſt with the flood tide; the ſhoaleſt water is $2\frac{1}{2}$, then deepens gradually to 5 fathoms. Steered S. E. eaſterly, the northernmoſt fort bearing E. N. E. and a $\frac{1}{4}$ leſs than 4: regular till the fort bore N. E. by E. the great Moſque E. by N. depth $3\frac{1}{4}$ fathoms, and mark under water 3, *Zee Hill* bearing S. E. by S. juſt open to the ſouthward of the higheſt point of trees to the ſouthernmoſt fort; then hauled near wind and ſteered W. $\frac{1}{2}$ S. having a $\frac{1}{4}$ leſs than 4 fathoms. Steered again W. by N. and W. by N. $\frac{1}{2}$ N. and ſhoaled to a foot leſs than 3, then regular to 5 and $5\frac{1}{4}$. The Neat's Tongue and forts ſhewing, as in the following bearings: *viz.* The northernmoſt fort E. N. E. regular ſoundings to 7, and next caſt to 10 fathoms. The ſouthernmoſt fort E. by S. $\frac{1}{2}$ S. and with the Neat's Tongue, as in the ſecond bearings, tacked, and in N. E. $\frac{1}{2}$ E. ſoundings 4 or 5 caſts, mark under water 10 and $9\frac{1}{2}$. The ſouthernmoſt fort then bearing E. S. E. and the Neat's Tongue, as in the third bearings, regular to $4\frac{1}{2}$ fathoms. The great Moſque will be juſt to the ſecond hill above the Neat's Tongue, as in the fourth bearings; then ſhoaled to 3 fathoms, which I take to be the ſpit from the Knowl, being the ſhoaleſt water; then the ſoundings on the ſame courſe, 4, $4\frac{1}{2}$, $\frac{1}{4}$ leſs 4, $3\frac{1}{2}$, $4\frac{1}{2}$, 4, the ſouthernmoſt fort S. E. the Moſque E. by S. Zee-hill, juſt ſhut in with the firſt point of trees, next the ſouthernmoſt fort; the greateſt diſtance from the town about 3 leagues."

EXTRACT

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## EXTRACT OF THE JOURNAL OF THE LATHAM, bound up the Red Sea to Jeddah, in 1758.

" AT Sun riſe, having a pleaſant gale, ſaw the Iſland Mehun or Babel Mandel, bearing N. W. ¼ W. at the ſame time ſaw three openings or inlets, all of which appeared like the ſtraits (being deep bays), we then ſteered for Babel Mandel Iſland till within about ¼ of a mile of it, ſteering right from the body of the iſland. Sounded from 23, 24 and 22 to 23 fathoms, when entering the ſtraits from 21 to 10 a 14¼, 14, to 7, a 7 to 16½, a 16 to 36 fathoms; from the ſtraits to Moka, ſoundings 16, 15½, 15¼, 14, 14½, 13, 14, 14½, 16½, 13 fathoms. The higheſt Moſque bore E. S. E. 6 or 7 miles, and when Babel Mandel Point bore South, we were in the narroweſt part of the ſtraits; for from the Iſland runs out a bank (where the *Eſcort*, Captain *Evans*, was aground) ſo you muſt come no nearer than 7 fathoms, for the next caſt you will be on the bank, being ſteep to. Directly oppoſite to this point, on the other ſide of the ſtraits, runs a ſmall ledge of rocks which are above water. Our courſe to the ſtraits was W. N. W. through the ſtraits N. N. W. and when Babel Mandel Point bore South, hauled up North ¼ W. and deepened the water very faſt.

" MEHUN, or *Babel Mandel Iſland*, which is eaſily known by its being a low, barren, and plain ground, with a white ſandy beach, forms the ſtraits to the ſouthward. The land to the northward is very high, and cragged with hummocks, the moſt of them terminating in white ſandy tops. In our return from Moka we came through the broad ſtraits.—Note. The *Gungava* (already mentioned,) loſt her paſſage to Jeddah, and got only two days ſail to the northward of Moka.

" In ſailing through the ſtraits found a very ſtrong current in our favour; kept the long boat a-head all the time, and went under our topſails at the rate of 7 knots.

" Sailing from Moka up the Red Sea, you ſtand between N. by W. and N. by E. between the main and the iſlands, keeping ſoundings from 20 and 28 to 30 fathoms; when you are near the iſlands you have 30 and 35 fathoms; running about 65 miles you will be abreaſt of the north end of *Gebel Zeghir*. In the evening the Iſland *Gebel Aroe* bore Weſt, and the Iſland Gebel Zeghir N. by W. the middle of the Iſland W. N. W. diſtant off ſhore 6 leagues; little wind all night, depth of water a 33 to 23 fathoms. In the morning ſhoaled our water a 23 to 13, and then 9 fathoms in a ſhort time, ſand and mud. At four got into 7 fathoms, and let go our anchor, it being calm. At day-light we were about 4 leagues from the Moka ſhore, by which I find we had a current ſetting to the eaſtward. This bank runs from the main about 4 leagues: we ſounded, and had from 7 to 8 fathoms, within 3 miles of the ſhore; a little to the weſtward we had 14 and 15 fathoms; it is alſo ſteep, and you will be from 20 to 7 fathoms in two caſts of lead. Point Kimerah bore S. E. and Point Namel N. N. E. diſtant off ſhore 4 leagues. This bank lies 10 or 15 leagues northward of Moka, the Iſland of Gebel Zeghir N. W. ¼ W. and the Iſland Gebel Aroe W. S. W. diſtant 9 or 10 leagues. In this bay at *Boba* is freſh water.

" If you are ſailing and are paſſed the north end of Gebel Zeghir, you muſt haul in for the Arabian ſhore, and run down in 18, 16, or 15 fathoms; but about 6 leagues to the



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northward of Moka, there is a bay, where you are obliged to ſteer S. W. and S. S. W. to keep in the aforeſaid ſoundings. This is a good mark in the night, or when it is ſo hazy that you cannot ſee three ſmall hills which lie near the ſhore, and diſtant from Moka about 5 leagues.

" The courſe from Gebel Zeghir to *Sabagar Iſlands* is N. W. by N. diſtance about 60 miles. When you paſs Gebel Zeghir, ſailing to the northward, and it bears W. S. W. you will ſhoal your water very quick, ſo that you muſt be very careful of your lead, and not come under 21 or 22 fathoms, for hereabouts is a ſhoal that will take up a large ſhip.

" If you keep near the Arabian ſhore, you will have ſoundings up as high as *Gebel Tar*, and theſe ſoundings are from 12, 20, 30, and 40 to 55 fathoms, fine ſand. When diſtant from the ſouthernmoſt iſland about 6 miles, you have 50, 45, and 40 fathoms, within a cable's length of the ſhore, but you ſoon loſe your ſoundings, unleſs you keep to the eaſtward, as the bank is ſteep. There is a dangerous rock, which lies to the eaſtward of theſe iſlands, and is about three miles diſtant from them; it is almoſt even with the water's edge, and about 50 yards in length; I could not diſcover any breakers round it. Good marks to ſhew you that danger, are when the northernmoſt of the Sabagar bears* N. W. by N. then you have that rock and the iſland in one; or when the South iſland, from the northward bears W. N. W. northerly, then you have that rock and the iſland in one; or when abreaſt of the ſouthernmoſt iſland, the peak upon it bearing W. $\frac{1}{4}$ N. diſtant 3 or 4 miles, the rock then bears N. by W. $\frac{1}{4}$ W. 4 or 5 miles. If the ſouthernmoſt iſland bears W. by N. and the northernmoſt N. N. W. the rock then bears N. $\frac{1}{4}$ W. depth of water 55 fathoms, diſtant off the neareſt iſland, which is that with the peak upon it, about 5 miles, or from the rock, about 6 or 7 miles.

" The northernmoſt of the Sabagar lies in latitude 15° 10′ North. The Iſland *Raſab*, or *Baſhal*, has its ſouth end in about 15° 15′ North; it bears from the northernmoſt of the Sabagar N. E. by E. $\frac{1}{4}$ E. diſtant 6 or 7 leagues, and from the Iſland Gebel Tar about S. E. by E. Raſab is very low and barren, not to be ſeen above 4 leagues off, from the deck. Off this lies another ſmall iſland, and they almoſt join; you have ſounding off this iſland from 55 to 40 fathoms.

" The Iſland Gebel Tar, whoſe northernmoſt end lies in latitude 15° 32′ North, bears from the Sabagar N. N. W. diſtant about 7 or 8 leagues. It is dangerous coming near this iſland, if you have but little wind, for the current will ſet you upon it, and there is no anchorage, within a cable's length off the ſhore, except on the north-eaſt part, where you have good anchoring ground. Between this iſland and that of Baſhal, you have ſoundings 35, 30 and 25 fathoms, ſand and rocky ground.

" To the weſtward of this iſland lies a dangerous ſhoal, with great overfalls, upon which a French ſhip got aſhore in the year 1751, and with great difficulty got off. The iſland then bore about E. by S. diſtant 10 or 12 leagues. You muſt not come under 25 or 30 fathoms.

* There appears to be ſeveral miſtakes, concerning the rocks and the bearings of the iſlands, in this part of the Journal.

" In

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" In latitude 16° 40′ North, and by reckoning 1° 41′ Eaſt from Jeddah, ſaw an iſland on the eaſtern ſhore bearing N. E. by E. ſounded and had 23 fathoms, rocky: we ſteered S. by E. 40 miles, and then ſaw Gebel Tar S. W. 6 leagues.

" In latitude 16° 50′ North, and 1° 0′ Diſtance Eaſt from Jeddah, ſtruck ſoundings upon a bank on the Abyſſinian ſhore; had 45, 30, 24, 35 and 30 fathoms, ſometimes corally, other times ſandy and ſhelly; we ſtood between the S. E. and E. S. E. 8 miles, then had no ground with 70 fathoms of line.

" In latitude 16° 36′, by reckoning 1° 25′ Eaſt from Jeddah we ſtruck ſoundings, had 25 fathoms, rocky ground, but hauling to the eaſtward had no ground at 70 fathoms.

" In latitude 17° 0′, and 1° 20′ Eaſt from Jeddah had ſoundings 37, 40, and 45, corally; then 33, 45, and 42 fathoms, mud.

" In latitude 16° 44′ North, made two ſmall low iſlands on the Abyſſinian ſhore, bearing S. W. diſtant 4 leagues, had ſoundings 30 fathoms.

" In latitude 17° 38′, and by reckoning 20 miles Weſt of Gebel Tar, ſtruck ſoundings on the Arabian ſhore, 45 fathoms, coarſe ſand, and ſoon after ſaw two ſmall ſandy iſlands; we were about 4 leagues diſtance from them, and ſaw ſome ſhoals under water; ſo that if you ſtrike ſoundings, you ought to put about immediately.

" In latitude 17° 57′, diſtance from Gebel Tar 1° 11′ Weſt, made two ſmall iſlands, bearing N. E. by N. diſtant 10 miles.

" In latitude 18° 0′, diſtance from Gebel Tar 53′ Weſt, lies a low white iſland, with breakers off it, on the Arabian ſhore.

" In latitude 18° 30′, diſtance from Gebel Tar 1° 53′ Weſt, ſaw the Abyſſinian ſhore, diſtant 14 or 15 leagues, and five iſlands bearing from N. W. to North 4 leagues off. When you are come in latitude 20° 30′, and Meridian diſtance from Gebel Tar 1° 35′ Weſt you will ſee the high land of Jeddah bearing E. by N."

## DIRECTIONS FOR SAILING FROM THE MALABAR SIDE OF INDIA TO THE RED SEA.

### 1° FROM BOMBAY OR SURAT, ON THE NORTHERN PART OF THE COAST.

IN November and December a ſhip bound from one of thoſe ports, being got once a little off ſhore, will find a freſh gale at N. E. with which, ſteering large, ſhe muſt have a ſpeedy paſſage. But as it blows hard, eſpecially weſtward of Socotra, and the weather is often dark and cloudy, it is beſt not to attempt ſeeing that iſland; but keep to the northward of it, and fall in with the coaſt or Arabia, near Aden, being careful to keep the lead going and a good look-out.

A ſhip on the ſame voyage, in January and February, will have much the ſame winds, but more moderate, and the weather very fair; it is beſt therefore to make for the eaſt end

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of Socotra, taking care to be in its latitude, before the weſting is run down 20 or 30 leagues: the land being high may be ſeen at 12 and 16 leagues diſtance; nor is there any unſeen danger near it. You may range all along the north ſide, and from the weſt end ſteer directly for Aden, heaving the lead as you draw near the coaſt of Arabia.

In March and April ſhips bound that way will have fainter and leſs conſtant N. E. winds than in the four preceding months; it frequently blows from the N. W. quarter, with fair weather and calms; the land and ſea-breezes, or perhaps the S. W. winds and currents, being now at the beginning near the ſhores of Arabia, you muſt, to avoid them, ſteer from Bombay W. S. W. and S. W. ſo as to paſs 10 or 12 leagues to the ſouthward of Socotra; and after getting in with Cape Guardafui, work up along the coaſt of Africa till paſt Burnt Iſland, and then croſs over to Aden.

When a ſhip leaves Bombay in April, it is more neceſſary to keep well to the ſouthward of Socotra, for if ſhe cannot weather that iſland with a S. W. wind, ſhe muſt loſe her paſſage; but if ſhe is unable to reach the coaſt of Africa ſhe can always work along ſhore high enough to fetch Aden; from whence, even in June and July, ſhe may work up to Moka, by keeping very near the ſhore.

The beſt time for this voyage is between October and March, when the ſoutherly winds prevail; however, a ſhip will always gain her paſſage by perſeverance, even in May or June, the current running frequently to the northward againſt the winds, in thoſe months, eſpecially in the ſprings.

### 2° From ANJENGO, COCHIN, CALICUT, &c. on the Southern Part of the Coaſt.

THE navigation from theſe ports, and others on the Malabar Coaſt to the Red Sea, is at each ſeaſon, much the ſame as from Bombay or Surat; only it is to be obſerved, that all ſhips from this coaſt ought to paſs through the Laccadives, or Lakedivas Iſlands. In the months of November, December, and January, they may ſafely go through what part they pleaſe; but in February, March, and April, they ought not to quit the ſhore to the ſouthward of 10° or 11° of latitude: this will prevent the riſk of being carried among the Maldivas, by the S. S. E. current and high winds, which they certainly will then find among the Laccadives. And as a ſhip cannot avoid being well to the ſouthward, when paſſed the Laccadives, perhaps in 9° or 8° latitude North, therefore inſtead of ſteering to the W. S. W. and S. W. ſhe ought to ſteer W. N. W. or N. W. by W. to get into 11° 30′ latitude North, and then Weſt, which is the beſt track to ſteer when you leave the coaſt early in March. But late in that month, or early in April, the track of 9° or 10° latitude North, is to be preferred, though it will not always be found practicable, the winds blowing uſually from North to W. N. W. You muſt therefore ſteer cloſe hauled, betwixt W. N. W. and S. W. as the winds will permit; then to the northward for the S. S. E. currents, rather than go too much to the ſouthward; ſtanding ſometimes a few hours N. by W. or North, or even N. by E.; but theſe trips ought ſeldom to be made, as getting to the weſtward is chiefly wanted; and you ought by no means to croſs the Line, nor even go beyond 2° latitude North if you can avoid it. When a ſhip, late in April, or early in May, has got within

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within 50 or 100 leagues of the coaſt of Africa, ſhe will generally meet with S. W. to W. S. W. winds, that will carry her to windward of Cape Guardafui; but if ſhe falls to leeward of Socotra in that ſeaſon, her paſſage is loſt.

## DESCRIPTION OF THE COAST OF ARABIA BETWEEN ADEN AND MOREBAT.

### MACULA BAY,—KISSEEN,—CAPE FARTASH,—DOFAR, &c.

Chiefly from M. D'APRE'S.

FROM the beginning of April to the end of Auguſt, the winds upon the coaſt of Arabia, as far as Morebat, blow from S. W. to S. S. W. varying to the Weſt in hard ſqualls, and ſometimes accompanied with rains; for which reaſon, during this part of the year, working to windward along the coaſt is impracticable, as there is no port to ſhelter you from ſtorms, and in many places no ſoundings farther than 2 leagues from ſhore. In September the winds blow a little freſh from the Eaſt, with ſtrong currents to the weſtward, and continue ſo to the end of March, with frequent land and ſea-breezes, which are very faint from the weſtward, but very freſh from the oppoſite quarter. Hence it is that ſhips ſailing from Moka towards the end of Auguſt, or later, and bound to the eaſtward, ſhould avoid this coaſt, and keep more ſoutherly in order to take advantage of the W. S. W. winds, which blow there till the middle of September: many have loſt their paſſage, for want of attention to this obſervation.

The principal Bays on this coaſt are Macula, Kiſſeen, Dofar, and Morebat.

MACULA BAY, 60 leagues N. N. E. from Cape Aden, is about 3 leagues deep, and 6 broad, its land being very high: at the north-eaſt point there is a hill a little higher than the others, under which lies a road where you are ſheltered from the winds blowing between the E. N. E. and the N. W.; you anchor at a cable's length from a little rocky point where there is no danger but what is viſible; 3 cable's lengths N. W. of this point there lies a reef of rocks under water, upon which the ſea ſometimes breaks. The marks for anchoring here are the eaſt point of the bay S. E. one league diſtant, and the weſternmoſt point S. W. in 3½ fathoms; as for the reſt of the bay, you may anchor in 15 or 16 fathoms one league off ſhore; at the bottom of it a little town is ſeen, and on the point ſome fiſhermen's huts; fiſh here is in plenty and good, but water and proviſions are ſcarce and very dear.

From Macula Bay to the Point of Shahar the coaſt runs E. N. E. 12 or 13 leagues; there are many villages ſeen along, whoſe inhabitants are not very ſociable. From the eaſt point of Macula you may coaſt it in 9 fathoms, or nearer on occaſion.

SHAHAR appears a fine town ſituated by the ſea ſide, and may be ſeen 5 or 6 leagues off, reſembling ſeveral white cliffs: it is known by two hills, one to the northward, and the other

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to the ſouthward; the inhabitants are civilized, and have a king who gives a kind reception to ſtrangers. The marks for anchoring are the northernmoſt hill N. E. by N. and the weſternmoſt hill Weſt *by compaſs*, in 9 fathoms, ſand and ooze. The variation there was about 7° Weſt in 1782.

From Shahar to Cape *Beccouas-Hova*, commonly BOGATSHUA, the courſe is Eaſt 15 or 16 leagues, a clear bottom without any danger, and the coaſt pretty high: there are from 50 to 60 fathoms 2 leagues off ſhore: one league from the cape you find but 12 fathoms, and as you approach, it ſhoals gradually.

From Cape Bogatſhua to Keſhin or Kiſſeen Point, the courſe is E. N. E. ½ N. 31 or 32 leagues. The inland part between them is high, and may be ſeen at leaſt 10 leagues off, but the coaſt is low, with many villages: it is alſo very ſafe, having from 30 to 40 fathoms 2 leagues from ſhore. KISSEEN point is a high land which may be perceived 10 or 12 leagues at ſea, and is remarkable by two peaks that make like *Aſſes ears*, with an E. by N. or E. N. E. bearing: when they bear N. by W. you may ſee the two little towns of Kiſſeen and Durga, whoſe anchoring places are to the N. W. in what depth you think proper.

From Kiſſeen point to CAPE *Fortuach* or FARTASH, the courſe is N. E. by E. ½ E. 22 or 23 leagues; the coaſt between them is low to ſeaward, and high within land, with ſome villages here and there: the ſoundings here run farther out, for 2 leagues off you find 37 fathoms, which ſhoal gradually, as you are ſailing nearer ſhore; but at Cape Fartaſh, there are 40 or 50 fathoms within ½ a league. This cape is very high, and may be ſeen at a diſtance of 20 leagues: to the northward of it the coaſt forms a large bay, which has good ſoundings, and holding ground, though no great depth is to be found but about the cape. You may anchor there, in what depth you will, but when you have paſſed it, you meet, as in many other parts of the coaſt of Arabia, where the ſhore is high and ſteep, with no convenient depth for anchoring.

From Cape Fartaſh to DOFAR the courſe is pretty near N. E. 40 leagues: 3 or 4 leagues before you come to it, you perceive even land. Dofar is a ſmall town ſurrounded with trees, whoſe road is very narrow; the beſt anchoring is one mile off ſhore, in 5 or 6 fathoms, the higheſt houſe in the town bearing E. N. E.

They reckon 8 leagues from Dofar to Morebat, where Chriſtians are little beloved: at Kiſſeen, Europeans are better received; but moſt ſhips that loſe their paſſage, abide at Morebat, whoſe bay is preferable to that of Kiſſeen, eſpecially during the eaſterly Monſoons.

The tides are very irregular along this coaſt; they riſe at certain times 7 or 8 feet, the currents commonly ſetting with the wind, except at the new and full Moons, when they run for 3 or 4 days very ſtrong to windward, and this change is of great ſervice to thoſe who loſe their paſſage.

Many navigators, who are not acquainted with this accidental difference of the winds and currents, are fearful of ſailing near the ſhore; however, this muſt and may be done without danger; for the winds ſeldom blow ſtrong on the ſhore during the eaſterly Monſoons.

From

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From Cape Morebat to Cape Roſalgat the courſe is E. N. E. and N. E. by N. above 160 leagues, and 42 leagues S. W. by S. from the cape lies Mazeira Iſland. That coaſt is full of rocks and dangers, which are but little known; beſides it is not ſafe to approach it becauſe of the currents all along, which may ſet you on it, ſhould you be taken in a calm. Nevertheleſs ſhips bound to the Gulf of Perſia, which commonly make Cape Roſalgat, ſhould not keep more than 15 or 16 leagues to the ſouthward of the cape. Along this coaſt there are ſoundings about 3 leagues off ſhore.

Cape Rosalgat is the eaſternmoſt point of the coaſt of Arabia; its extremity is low, but within land are exceeding high mountains ſeen 20 leagues off at ſea.

## DESCRIPTION OF THE COAST OF ARABIA,

### BETWEEN DOFAR AND MAZEIRA ISLAND;

By Captain John S. Smith, of the King's Ship San Carlos, 1781;
With the Run from that Coaſt to Bombay.

*Remarks of Lieutenant* George Lewis,
*Commander of the* Prudence *armed Ordnance Store Ship*, 1782.

*Remarks on* Mazeira Island,
*From the Journal of the* Royal Admiral, *Captain* David Simmonds, 1772.

"ON the 25th September 1781, we ſailed from Johanna with a very favourable wind; on the 5th October croſſed the Line in longitude 49° 49′ Eaſt by account, and 47° 49′ by a good obſervation, which will appear too far to the weſtward at this time of the year. We met with little wind in latitude 8° 20′ North, longitude 56° 51′ by account, 54° 51′ by obſervation, and from that to calm, which laſted near 5 weeks; by which we loſt the opportunity of the latter part of the S. W. Monſoon to make the coaſt of Malabar, expecting to meet a northerly Monſoon in latitude 17° North, which would have enabled us to make ſome part of the coaſt. But being too far to the weſtward, we made the coaſt of Arabia about Point Moutaval*, and the iſlands off the Bay of Curia-Muria; the current running very ſtrong, and there being little wind, we perceived the convoy loſt ground conſiderably daily; the Commodore accordingly ordered me in the *Manilla*, a ſmall ſhip very fit for that purpoſe, to explore the coaſt, and find out a place for the convoy to refreſh.

" I ſailed from Moutaval Point within ſometimes 2 miles, ſometimes leſs, and ſounded with 50 fathoms, no ground, till we arrived at a point 3 miles to the eaſtward of Morebat, when we got 30 fathoms at leſs than $\frac{1}{2}$ a mile from it. We ſaw ſeveral creeks along this part of the coaſt, but no appearance of water, or refreſhment till we come to Morebat, which

* In the draught of Lieutenant *George Lewis*, Point Moutaval is called *Cape Morebat*.



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is to be known by ſtanding in; if you ſhould be in the offing, for the weſternmoſt part of a high mountain which joins Moutaval, you will not ſee the town till you get very cloſe in: if you ſhould not be able to fetch it, you muſt work cloſe in ſhore, without the leaſt fear, in the evening, and contrive to be in the offing about 8 or 9 o'clock in the morning for the ſea-breeze, which I found very irregular. But if this ſhould not be the caſe, you may occaſionally anchor along this part of the coaſt towards Dofar, and take the advantage of the wind as you may find it. If you come along ſhore from Moutaval, you will find it near 20 leagues from the point, which is to be known by a long low point that is the eaſternmoſt part of the bay; you may go within ½ a mile, and ſtand into the bay, in what water you pleaſe, the ſoundings being very regular; the beſt anchorage is in 8 fathoms water, about one mile from the town. If the inhabitants ſhould be ſhy, you muſt wave a white flag on a ſtaff, and they will come off; they behaved very well to us, but I don't think they are to be truſted too far; and it would be improper to riſk going far from the beach, or ſleeping on ſhore in the night.

" We found a ſcarcity of water, which we remedied by ſinking caſks near the Moſques, by which the convoy, conſiſting of 17 ſail, were watered in 11 days, and ready for ſea; having got plenty of fiſh, and ſome goats, ſheep, and bullocks, the latter a ſcarce commodity, but fodder more ſo; the water was brackiſh, but we did not find it affected the health of the people: upon the whole, I would recommend ſhips, who may be circumſtanced as we were, to put into Morebat, and get water and refreſhments; but if they are not in want, it will be neceſſary to make every advantage of the ſhore, as they will find I have done, by the following obſervations.

" We left Morebat and ſtood off ſhore, expecting the ſea-breeze in the morning, however we did not find it ſo favourable as before; ſtill we got to the windward by ſtanding cloſe in ſhore; and though the wind was never one point to the northward, or ſouthward of Eaſt, we worked up to Moutaval in ſix days, with a very heavy convoy, ſo that there muſt have been a ſtrong weather current, which I have great reaſon to believe is often the caſe.

" From Moutaval we ſtood over to the iſlands to take the advantage of the ſea-breeze in the afternoon, which we were ſucceſsful in getting, and fetched up with the weſternmoſt iſland called *Haliby*; this iſland is ſmall and pretty bold to; a boat ſounded between it and * *Sardy*, and found 27 fathoms about one third over, and a little farther no ground, with 40 fathoms; we ſtood in ſhore from the Iſland Sardy, and in ſounding found moſtly 30 fathoms, and very regular ſoundings all over the bay of CURIA-MURIA, which we worked through in three days, taking the advantage of the ſea and land-winds. The paſſage between all the iſlands appears to be very good, but finding the advantage of ſtanding in ſhore, I did not go through; had it been neceſſary, from every appearance I ſhould have gone through between any of them without the leaſt fear, keeping the lead going.

" About 8 leagues to the weſtward of CAPE CHANSELY in the bay, I ſpoke to a country boat from Moka, who informed me ſhe left that place on the 4th of December, at which

* Sardy is the weſternmoſt iſland in Lieutenant *Lewis's* Draught.

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time ſhe ſaw four Eaſt-Indiamen going into * Moka, and another ſhip, which I ſuppoſe was the *Content*, who had left the convoy under my command, and gone with the Indiamen, when I firſt left the men of war with the convoy, after returning from exploring the coaſt. I mention this to ſhew how little the Eaſt India ſhips are acquainted with the advantages to be gained in working along this ſhore.

" We ſaw ſeveral ſmall coves in the bay of Curia-Muria, for ſhips to anchor in, but none that appear to be ſecure from the eaſterly Monſoon. In ſtanding out, found the ſoundings very regular from 30 to 60 fathoms, at which time Cape *Marica* or *Matrica* bore N. ¼ E. diſtant 14 leagues, and Deriaby Iſland W. S. W. ¼ W. 4 or 5 leagues, in leſs than half an hour, going 3 knots, we had no ground with 120 fathoms; all the ſoundings we got were in fine ſandy ground. The wind being at North, we ſtood on the larboard tack in the evening; the wind being variable we tacked occaſionally for two days, when we ſtood in-ſhore again, and found we had gained very little; the ſoundings being as regular as before, we worked along ſhore within 2 or 3 leagues between Cape Chanſely and Cape Marica, the leaſt water we had inſhore was 29 fathoms, 4 miles off; but on ſtanding out, with the wind at North, we got leſs; and as we ſhoaled, the ground became rocky and chalky. Cape Marica bearing N. N. W. 4 or 5 leagues, with the land open to the northward 2 points, and Cape Chanſely W. ¼ N. 6 or 7 leagues, we got 20 fathoms, chalk and rocks; half an hour after, 28 fathoms, fine ſand; we ſtood inſhore again, the wind coming from the ſea; in ſtanding in we ſhoaled to 21 fathoms, and then deepened to 30, about 2 miles from Cape Marica; we worked in ſhore the beſt part of the night, with very regular ſoundings. In the morning ſteering E. N. E. we ſhoaled to 17 fathoms, and a ſhip I ſent to ſound to the northward had 10 fathoms, Cape Marica then bearing W. by S. and the extreme of the land to the northward N. W. by N. after which ſtanding off ſhore we gradually increaſed our ſoundings to 48 fathoms.

" We were then about 20 leagues from Cape Marica, which bore W. by S. latitude 18° 24′ North. We had the wind from that time to two days after, in light breezes, ſometimes S. E. ſometimes N. W. by N. ſo that we lay up N. E. with a full ſail, and I expected to have cleared the land with that courſe, having an offing of 20 leagues, but to my ſurpriſe we ſhoaled our water to 16 fathoms, which happened before day-break in the morning; upon which I tacked, not ſeeing the land; but as ſoon as the day appeared we found the body of the land about 6 or 7 leagues, and the eaſternmoſt point E. N. E. We ſtood off about 4 miles E. by S. and deepened our water to 32 fathoms, when I ſtood in again, and found the ſoundings very regular to 3 fathoms about ½ a mile from the ſhore. A breeze coming off ſhore, we ſailed E. ¼ N. all night about 10 leagues, when we obſerved the eaſternmoſt land in latitude 18° 57′ North, we were then about 2 miles W. S. W. of it. This I take to be Low † Point from its appearance.

" We found there a ſtrong current ſetting W. S. W. ſo that we could not weather the point with a freſh breeze at S. E. though we lay up to the windward of it ſeveral hours, being

* Theſe ſhips went to Kiſſeen, and not to Moka.

† Lieutenant *Lewis* names this point *Cape Iſolotte*.



obliged

obliged to tack very often, and work very close to the shore, we got very regular soundings to 11 fathoms, above $\frac{1}{2}$ a mile from the point; and after we weathered it, we stood up along the shore, which runs almost North and South, and found the current set us about S. W. We were obliged to tack back again to wait for the convoy, several of which did not weather this point for 48 hours; during this time I worked along the shore, and found the soundings very regular, till I got off the SHOAL CLIFF, (so named from the number of shoals off it,) which bears N. $\frac{1}{2}$ W. about 10 leagues, when we found very great irregularity in the soundings; several of the ships found 8 and 6 fathoms; the *Porpoise* was in 5 fathoms, rocks, in the night, being then about 3 miles from me, and I had 27 fathoms; the next day I shoaled, from 24 fathoms to 18, 15, 12, 10, 6, 5, and 4, in less than an hour, going only two knots. I ordered all the boats to sound, who found the like irregularity in many places, so that this part of the coast may be considered as truly dangerous. When I got 4 fathoms, the island point bore N. W. 5 leagues, the Shoal Cliff W. by S. 7 leagues, and the Low Point S. S. W.

" I then stood S. E. by S. and increased the soundings very regular to 24 fathoms, about 5 miles from the spot. Here we caught a great quantity of rock cod, which is another plain indication of this part of the coast being rocky; and all the country boats we saw went without those shoals. A favourable breeze springing up, I endeavoured to make a N. E. course after standing out, till I deepened the water to 62 fathoms, at which time Low Point bore S. W. by W. and Shoal Cliff N. W. $\frac{1}{2}$ W. both distant 10 leagues.

" We made a N. E. by E. course good, and ran as near as we could judge, with a fair wind 40 leagues, when we observed the southernmost part of the Island Maziera, in latitude 20° 18′ North, and from the appearance of the land we judged there was another island to the northward, the northernmost part of which we found in latitude 20° 49′. We got soundings on either a bank or shoal from some part of the main land, from 70 to 54 fathoms, no ground to be got before or after with 200 fathoms line: they were the last soundings we got on the coast of Arabia.

" A favourable breeze coming from the southward we steered N. E. to the latitude of 21° 44′ North, when the wind being likely to continue we steered more to the eastward, and carrying the wind southerly for seven days we made the most of it, by edging towards Bombay gradually, till we got into 20° 10′ latitude North, when the wind coming to the northward, I steered as near East as the wind would permit, and got soundings in 19° 40′, 50 fathoms, which we found, by our run after, to be near 40 leagues from the land: we shoaled to 45 fathoms, after running 3 leagues, and carried those soundings 12 leagues; then got 40, after which we shoaled gradually to 24 fathoms, when we saw the land bearing E. N. E. which proved to be the island of Tanna or Salset, about 9 leagues."

The following remarks on MOREBAT, and CURIA-MURIA BAY were made by Lieutenant *George Lewis* in 1782.

" The low land of Morebat," says this gentleman, " I suppose to be 5 or 6 miles across, and in length about 38 miles: it is quite a flat, and I believe about 6 or 7 feet above the level of the sea. The Arabs of this low part are at continual wars with those on the high part

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part, with whom they have no communication. The road of Morebat is good, and ſome poor bullocks are to be had there, alſo goats and a few fowls: the water is got by digging deep in the ſand, but is brackiſh. When in Morebat Road, the weſternmoſt land in ſight bears W. by S. ½ S. but it did not appear to me that the land is ſo high that way as to the eaſtward. Cape Morebat, called by ſome point Moutaval, may be ſeen 30 leagues, at ſea, and is much higher than the South Foreland: from this cape to Cape Chanſely, and a great deal farther to the eaſtward, is a very high table land without a tree to be ſeen.—The Rocky Iſlands in the Gulf of Curia-Muria, are from 2 to 7 miles long. I was on ſhore on Halky, which is above 2 miles in length; we ſaw ſome of the iſlands at the diſtance of about 20 leagues.

"I obſerved the tide riſes on the beach in ſpring tides, at Morebat 6 or 7 feet, and flows about 9 hours, or S. E. and N. W. The weſt Variation in 1782 was at Cape Morebat 7°, at Halaby Iſland 6° 3′, at Cape Chanſely 6° 2′."

We ſhall conclude this deſcription of the Arabian coaſt, with the extract of a journal of the *Royal Admiral* when ſhe went between Mazeira Iſland and the main in 1772.

Auguſt 16th at noon they obſerved in latitude 20° North, and had made 49° 16′ Weſt, from Prince's Iſland, in the ſtraits of Sunda; they found the water diſcoloured, but had no ground at 70 fathoms.

On the 17th in the evening, had ſoundings, and ſtood off to the eaſtward; but finding the water ſhoalen faſt, it was thought beſt to anchor till day-light; found a current ſetting to the northward; in the morning it was thick weather, but they weighed and endeavoured to work out, the wind blowing freſh from South, and S. S. W. finding they ſhoaled their water, on each tack anchored until clear weather.

On the 18th at 4 P. M. on its clearing up, they weighed in order to find a paſſage between the iſland Mazeira and the main, or a place of ſafety. They ſteered to the northward, N. N. E.—North, and N. by W. ſounding 6 or 7 fathoms for ſome time, then ſhoaled from 7 to 4½ gradually: then ſteered N. E.—E. N. E. and Eaſt, came into 3 fathoms and anchored. Saw MAZEIRA ISLAND bearing from E. S. E. to South, diſtant 2½ or 3 leagues; the water fell 2 feet, and the ſhip ſtruck. At 8 P. M. they found the water to riſe again, which makes the time of high water 10 h. 48 m. at the full and change of the Moon; the water riſes 5 feet.

On the 19th they went and ſounded in a boat; and N. W. by W. 1½ mile from the ſhip, had 4 fathoms water, on which they weighed to anchor in that place; the variation was obſerved to be 5° 56′ Weſt. On the 20th at 4 P. M. a boat from the iſland went on board her with a pilot, and agreed to conduct them through between the iſland and the main: the boat went and ſounded to the eaſtward; between the iſland and the ſhip had from 4 to 3 fathoms, then deepened gradually to 4, 5, 6 and 7; ſounded to the weſtward, and had 4½ fathoms, at 2 miles diſtance from the ſhip.

On the 21ſt, at ½ paſt noon, they weighed and ſtood S. E. by E. towards the iſland; ſoundings 4, 4, 3¾, 3, 3, 3¼, 3½, 4, and deepen gradually to 6 fathoms; then bore away Eaſt—E. N. E. and N. E. keeping in 6, and 5½ till near Mazeira Iſland, where they anchored in 5 fathoms, ſoft ſand and ſhells, abreaſt of the town; the iſland bearing from N. E. by E.

to

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to S. W. by S. diſtance off ſhore 2 miles, latitude by obſervation 20° 32′ North, and variation 5° 36′ Weſt.

On the 26th at 2 P. M. they weighed, and ſteered to the North and eaſtward, along the iſland from N. N. E. to N. E. in 5, $5\frac{1}{2}$, and $5\frac{3}{4}$ fathoms. At 3 they came up with a large ſand bank above water, bearing N. W. which forms the channel; they entered this channel, keeping the bank at a diſtance of $\frac{1}{2}$ a mile, the iſland at 3 miles, and the main about 2 miles.

In this channel they had from $4\frac{3}{4}$ to $4\frac{1}{4}$, and a caſt or two of 6 fathoms; when Mazeira Iſland bore from S. W. to N. E. $\frac{1}{2}$ E. diſtant $1\frac{1}{2}$ or 2 miles, they anchored in 4 fathoms water to ſound to the eaſtward, and weſtward of the ſhip, but found no leſs than 3 fathoms. At 8 weighed and ſteered along ſhore from N. by W. to N. E. occaſionally from 5 to 7 fathoms, at times $4\frac{1}{2}$. At 11 anchored in $4\frac{1}{2}$ fathoms water, being then through the paſſage. The north end of the iſland bore from S. $\frac{1}{2}$ W. to W. S. W. diſtant 3 miles, latitude obſerved 20° 48′ North; had no leſs than $\frac{1}{4}$ leſs 3 fathoms in going through, and that at low water.

## THE EASTERN COAST OF ARABIA.

### FROM CAPE ROSALGAT TO MUSCAT;

*With the Coaſt of* PERSIA *and* SINDI, *and their Deſcription, from the Remarks made by Lieutenant* JOHN PORTER, *who commanded the* DOLPHIN *Brig, on theſe Coaſts.*

CAPE ROSALGAT*, or *Roſalgate* and *Ruſſelgate*, according to the common pronunciation, lies in 22° 38′ latitude North, according to ſeveral obſervations; but the longitude of this eaſternmoſt point of Arabia is far from being determined with the ſame preciſion. M. *D'Après* places it in 60° 10′ Eaſt of London, and M. *Dalrymple* in 61° 10′, or a degree farther to the eaſtward, adding however that an implicit confidence muſt not be placed in that poſition.

From Cape Roſalgat to Muſcat, the courſe is to the N. W. above 40 leagues; thence to Cape *Jaſk*, on the coaſt of Perſia, the courſe is alſo N. W. bout 57 leagues. The coaſt then extends to the eaſtward during 160 leagues, and as far as Cape Monze, where the Coaſt of Sind begins; there it turns to E. S. E. and continues in this direction for about 80 leagues, 40 of which are taken up by the mouths of the river Sind or Indus, on whoſe eaſternmoſt branch lies the port called Bunder Lahery, or Larry Bunder. Lieutenant *Porter*, whoſe remarks we are going to abridge, began his ſurvey at this latter part of the coaſt, and proceeded to the weſtward as far as Cape Roſalgat.

The land about SIND, or *Sindy*, is very low, covered with ſhrubs, and not to be ſeen above 5 or 6 miles off; it continues ſo without any thing remarkable, till within 3 or 4 miles of the mouth of *Larry Bunder River*, and then it terminates in ſand, the extreme point only excepted, on which are ſeveral tufts of buſhes and ſome bamboes ſtuck up with white flags

on

* The Arabs call this cape RAZ-AL-HAD, and pronounce it *Raz-al-ghad*.

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on them, which are to be ſeen before the land: the ſoundings all along are regular, with mud bottom; the tide was found to ſet W. N. W. and E. S. E. 5 fathoms per hour.

From the mouth of Larry Bunder River is to be ſeen a part of the high land over Crotchey (Crochey); there is nothing remarkable between the two places; the land by the water ſide is low, interſperſed with ſhrubs; but up the country there are ſeveral hummocks of a moderate height.

CROTCHEY, whoſe land has a whitiſh appearance, is eaſily known by ſeveral iſlands to the northward, and by a white tomb built on a promontory, which at a diſtance appears like an iſland: the entrance into the bay is between the promontory and the largeſt iſland; but in caſe of neceſſity a ſmall veſſel may paſs, or anchor between any of the iſlands; the bottom is ſandy, as it is all over the bay. The town of Crotchey is ſituated 5 or 6 miles above the anchorage, and about a mile from the ſide of a creek which can admit only ſmall boats. This town carry on a great trade; they import from the country a great quantity of cotton, raw and ſpun, which is exported to the Malabar coaſt, Arabia, &c. Likewiſe almonds, raiſins dates, grain, ghee, oil and hides, and ſome piece-goods: they carry up in return ſugar, rice, pepper, &c. The water, which is not very good, is very dear on account of its diſtance from the harbour. Black cattle and goats are to be had, but dearer than on the Sind Coaſt. The people are very civil, and would not take any cuſtom from the Company's veſſel. The land at the back of Crotchey is pretty high, and extends ſo to CAPE MONZE, which is of a moderate height, but the land next the ſea runs ſo low as not to be ſeen except cloſe inſhore.

The ISLAND of CHILNEY appears of a whitiſh colour, and there are good ſoundings between it and the main; when round the cape the land forms a kind of bay, and is, as in all other parts of the coaſt, very high in the country, and extremely low by the ſea ſide, with very regular ſoundings, chiefly mud. There is, about 10 miles from the cape inſhore, a rock above water near as high and as big as the Oyſter Rock at Bombay, having 3 or 4 fathoms all round and cloſe to it; and in turning it up the coaſt, you may venture to ſtand pretty cloſe in, keeping the lead going, till you approach Sommeany, at which place the bar runs out a long way, and is dry in ſome places at low water. All along the coaſt from Cape Monze to Sommeany there are immenſe quantities of wood and timber, which is waſhed up in the S. W. Monſoons, eſpecially in that hollow or bight running in from the cape, but as there is a large ſurf, it would be difficult to bring off any part of that timber.

SOMMEANY is a ſmall town, at the entrance of a river, with an old mud fort in ruins: the houſes are very ſmall, and nothing more than mats and ſticks: every thing is very ſcarce there, even the water, which is got in this manner; they pick out ſome place near the town, which appears to have been a ſwamp, and therein they dig a hole 5 or 6 feet deep, and as much in diameter: if the water oozes through the land, which does not always happen, it ſerves them that day, and perhaps the next, when it turns quite brackiſh, owing to the nitrous quality of the earth. The town is ſcarcely diſcernible from the road; the beſt mark for finding it, is a remarkable gap in the high land at the back of it, which in clear weather cannot eſcape notice; when it bears N. N. E. $\frac{1}{2}$ E. the river's mouth is bearing N. E. by E. diſtant about 2 miles, in $\frac{1}{4}$ leſs 4 fathoms.

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The coaſt from this place runs along extremely low, but the back land is very cragged, and continues ſo to Cudjerah: there is a remarkable white land, in a kind of valley between Arrah and Cudjerah, which being very high, muſt ſerve as a mark for this part.

Cudjerah at firſt appears to run out to a low point, but terminates in a bluff with *Cape Muran* (Moran); after running 5 or 6 miles from it to weſtward, you ſee the rocks of *Kingalah*, which appear, unleſs very cloſe in, to be out in the ſea; though they ſtand on the edge of a low ſandy point; the ſhore is very bold all along, but the bank does not run off above 12 miles, and then deepens all at once, from 25 or 30 fathoms to no ground. In advancing near Cape Muran you deſcry

Cape Arubah (Arabak), which appears like an iſland; and the contrary is not perceived before you are in at the bottom of the bay, which is pretty deep, and its land very remarkable. There is a ſmall bay on the weſt ſide of the cape, but ſo ſhallow as not to afford any ſhelter to veſſels: the land is very craggy for 7 or 8 miles to the weſtward, from whence you ſee

The Island of Ashtola (Aſtola), which, at firſt riſing out of the water, appears very long and even at the top; it is of a moderate height, and 2 or 3 miles long. There are very good ſoundings all the way between the iſland and the main, but on the ſouth ſide you meet with foul ground and overfalls for 12 miles: on the north ſide you find two or three ſmall ſandy bays, into which great quantities of turtle reſort. Notice muſt be taken that on the ſouth ſide a rock is ſeen, which at a diſtance appears like a ſail, but on a nearer approach, with the help of a little imagination, might be taken for a camel lying down*. There is a river on the main a little to the eaſtward, but the bar at the entrance is ſo ſhallow as not to admit a ſmall boat. The land all along is very cragged, and has nothing remarkable till you come to

Cape Posmee, or *Poſmy*, which appears like the top of an old barn in coming from the eaſtward; it forms a ſmall bay, on which ſtands the village, chiefly inhabited by fiſhermen, who are very civil to ſtrangers: water is procured here in the ſame manner as at Sommeany, and you may buy a few goats, which are very lean and very dear.

After leaving Cape Poſſmee, you meet with the bluff Point of Shied, which ſhews like an iſland, and is the extreme to the weſtward; the high land of *Duram* appearing at the ſame time like another iſland, to the northward of it: the ſea coaſt is ſo very low between theſe two headlands, that even on a nearer approach it has the appearance of a deep bay: from Shied to Guadel the ſoundings are very regular: *Muddy Peak*, which makes one of the extremes of the bay, is very high, of a white colour, and very remarkable; as it can be ſeen at a great diſtance, it is always a ſure mark for

Cape Guadel (Guardell), which is not of a great height. Guadel Bay is pretty deep, but has ſhallow water, except towards the entrance, where you find 12 or 13 fathoms, with a decreaſe not very regular as you go up; the bottom is chiefly ſand, and no danger. The town is ſituated cloſe under the north ſide of the cape, which is a peninſula joined with the main by a neck of land not half a mile over; from one bay to the other there was an old

* This rock is called, in the old Portugueſe, Charts *Ilha do Camelo*, or Camel's Iſland.

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wall with towers, whoſe remains are to be ſeen, and likewiſe thoſe of a town built with ſtone, and ſome wells; but the inhabitants, who are few, live in mat-houſes: the greateſt part of them are weavers, who manufacture dark checks very narrow, and ſome plain carpets of different colours, but not rough. Water is got here in the ſame manner as at the places before mentioned, as they have found the water is not ſo good in wells built on purpoſe; you can have likewiſe ſome few goats, ſheep, and fowls. From Crotchey to this place the people call themſelves *Blochees*, and from this place to Jaſk they take the name of *Brodies*; there is ſome difference in their language, and perhaps in their religion, though none could be obſerved in their dreſs or manners.

When clear of Guadel Bay, a current was found ſetting to the eaſtward: there is a ſmall bay to the Weſt, which affords very little ſhelter: from this to VOUCH BAY the land is of a middling height near the ſea, but the back land is extremely remarkable by its ruggedneſs; the ſoundings all along are regular, with mud bottom, and pretty bold.

From Vouch Bay you come to NOA POINT; when abreaſt of this point the land on the other ſide of the bay is not to be ſeen; only a hummock or two, which look like iſlands. The land at the bottom of the bay, where there is a ſmall town inhabited by fiſhermen, being very low and covered with ſhrubs, is not deſcried till within 3 or 4 miles; and then the buſhes are ſeen firſt: the bay, though very large and deep, has very ſhoal water. In croſſing right over from Noa point, you firſt ſee a ſmall lump ſtanding on the high land, on the oppoſite ſhore, and nearly under that high land, there is an iſland which cannot be diſtinguiſhed unleſs you are very cloſe in; this lies at the mouth of a ſmall bay called by the natives *Bucker Bunder*, where they go to fiſh. After rounding the point of the bay, you perceive ſome very high cragged land, and to the weſtward of it a remarkable roundiſh hill, from which to Chewabad you muſt keep cloſe in ſhore, the bank running but a very little way out; and the current did ſet at the time Lieutenant *Porter* was there (in the beginning of January) two knots to the eaſtward; therefore by ſtanding off, if it ſhould be calm, as it is generally between the land and ſea-winds, you muſt unavoidably drive back to the eaſtward again; the current runs much ſtronger out than inſhore: in keeping along ſhore you have equal ſoundings, though very deep, and the bottom, for the moſt part, ſand or ooze. The land is of a moderate height from the forementioned hills till you come to the low point, making

CHEWABAD BAY; it then runs very low, and over it you perceive a white tomb and ſome trees, which are ſeen before the town of *Chewabad* or *Churbar* *: in going in you muſt give the low point a good birth, as there are rocks running out from it; but you may borrow as cloſe as you pleaſe to high-point, which has deep water cloſe in. You ſee there a ſmall mud fort, but no cannon; and this town, which is the beſt on the coaſt, is compoſed only of ſtraggling mat-houſes. There is about one hundred Banyans ſettled in the place, who

* This is a modern town which has replaced the town of *Tearſa* on the ſame bay where the Portugueſe formerly had a ſettlement, of which there are ſtill ſome remains; the principal man told Mr. *Porter*, he ſhould be very happy if the Engliſh would take poſſeſſion of Tearſa. All this land is dry, barren, and unfruitful; at that time no rain had fallen for ſix years, which produced a famine, that made half the people deſert the country.



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have a ſmall Buzzar, and many weavers, like thoſe at Guadel. The water is very good, and eaſily procured, being very near the water ſide. Goats and ſheep are to be had at a moderate price, but neither bullocks or fowls can be got; they have alſo very fine horſes and a few camels; ſome ſmall gardens produce vegetables of ſeveral kinds, ſuch as turnips, onions, potatoes, carrots, benjalls, &c.

Chewabad Bay is very ſmall, and the water on a ſandy bottom decreaſes there gradually as you go up, the tide riſing and falling a fathom on the ſprings: it lies at the entrance of a larger bay, very ſhallow, but with even ground; the low point of Chewabad makes one point of the bay, and the head land, called Colab, or Tiſme, or Tiz, makes the other; between Tearſa and Colab, the land is very low and covered with ſhrubs.

Colab affords good ſhelter from the weſterly winds, which ſometimes blow very ſtrong; thence the weſternmoſt extreme is Godeim, a headland level at the top, with very ſteep cliffs towards the ſea, and at firſt appearing like an iſland, the declivity on each ſide being very low. The land from Colab runs along of a moderate height, till it terminates in a remarkable bluff, between which and Godeim is a ſmall bay too ſhallow for veſſels to go in: the land around is very low, but at the back of it there are ſome craggy hills and pretty high. From Godeim you perceive a remarkable ſpot of land called *Coelat*, near which to the eaſtward is a ſmall river named *Tanka*, with about 2 fathoms at the entrance, at low water, but the ſoundings are very irregular, and moſtly hard ſand; about 3 miles up are the ruins of an old Portugueſe fort with Buzzars, wells, &c.

Between this place and Muckſa the land has nothing particular in its appearance, it ſeems only to become more fruitful, the valleys being planted with date trees. Muckſa (Muxon) from its form muſt have been taken for Cape Jaſk very often; it runs out to a low point, at whoſe extremity is a little mud tower, which is inhabited by ſome Packeers; they, with a few other wretched people, live in this deſolate place on the ſhell-fiſh they pick at low water, without any other grain, and without dates, except at the time of the year they are in ſeaſon. Bombareck may be ſeen from this place, though not to be diſtinguiſhed very plain to be ſuch: the land between it and Cape Jaſk is very low by the ſea ſide, but very high inland.

At the extreme point of Cape Jask is a river that appears ſo very full of banks and ſhoals as not to be entered, even by a boat *; its points are very low, and indeed not higher than a ſand bank; and as the ſhore itſelf is very bold, you might be cloſe in, if the weather is thick, before you could ſee the low land. Bombareck is not in the ſea, as ſome people have imagined, but is very near the beach, and has a ſmall hole on one ſide: the land to

* *Cape Jaſk*, or *Jaſques*, is thus deſcribed by *Thornton*:

"The Cape itſelf is a low ſandy point, whereon ſtandeth a white ſquare cliff, like a tomb, ſtanding in the ſea, but the cliff is not ſeen as you ride in the road.

"In this bay there is very fair ſoundings all over, the ground ſoft and oozy, except it be near the ſhore, or the eaſtern point. To the northward of this point, about 5 miles, there is a ſmall river, whereinto a ſmall ſhip, that draweth not more than 10 or 12 feet water, may go, and ride as ſafe as in a dock, where ſhe may have 4 fathoms and ½ at low water, and ride land-locked, and alſo lay her ſide to the ſhore; there is upon the bar of this river at low water but 5 foot, it does riſe 7 foot ½, or 8 foot upon the beſt of the ſpring; it floweth N. E. and S. W."

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the northward of it is of a moderate height, and the Arabian coaſt is plainly ſeen from this ſhore.

After leaving Bombareck, and running to the eaſtward enough to make 44 miles on a Rhumb, Lieutenant *Porter* ſteered due South for the Arabian coaſt, and made the land juſt to the northward of Muſcat Iſland. As the land over Muſcat is of a prodigious height, you ſee it a long time before you can judge with any certainty, till you are cloſe in, whether you be to the weſtward or eaſtward of Muſcat; it is only by knowing Cape Coriat, that you can be aſſured of your ſituation.

MUSCAT ISLAND generally appears yelloviſh, as well as ſome round hummocks at the back of it; you deſcry alſo ſome white ſandy beaches, and the rocks very black and rugged, which form the harbour: but all ſhips bound to Muſcat ought to ſtand cloſe inſhore, by which means they can always be ſure of knowing the land, or have an opportunity of anchoring, if it falls calm; for the current, which generally runs as the wind blows, is for the moſt part very ſtrong in the time of the North-weſters; and veſſels by keeping out may run the riſk of being driven a long way to leeward: then it would be no eaſy matter to fetch up again, as there is no anchoring ground in many places, and even when you find one it is too cloſe to venture with a large ſhip. There is no ground cloſe to the outer ſide of Muſcat Iſland, yet within it the bottom is very good, chiefly ſand or ooze, as well as along that ſhore above Muſcat, though very deep water. From Muſcat the eaſternmoſt Swady bears N. W. by W. diſtant 20 miles, the body of the Swady Iſlands running Eaſt and Weſt, with a very good paſſage between them.

The town of MUSCAT is walled round, and none but Arabs and Banyans, or Chriſtians, are permitted to live within the gates; the fugitive Perſians, Blochees, &c. of which there is a great number, live without the gates in mat-houſes. The entrance of the harbour is defended by two forts, and no veſſels are allowed to go in after duſk, or to come out without a paſs. Though the rocks about Muſcat have the moſt barren appearance, you find there very fine beef and mutton, and plenty of vegetables, with fruits of moſt kinds. The water, which is the deareſt article for ſhipping, is conveyed from above a mile without the gates to the ſea ſide, through a ſmall channel made with Chinnam and ſtones, to a reſervoir, from which it is let out by a leather hoſe into the boat, which may haul cloſe under. Fiſh is there very cheap, and in great variety and plenty; they bruiſe it in water with dates and a kind of earth, which mixture is the common food of their cattle, and is extremely fattening.

There are two large forts on each ſide Muſcat, which not only command the harbour, but the town alſo; one of them defends a ſmall bay or bight, which is formed by thoſe rocks that make Muſcat harbour; there is a paſſage between them into the harbour, but it has not above one fathom at high water: a veſſel that cannot weather the rocks which make the harbour, as it is ſometimes very difficult in the North-weſters, may run in the bight without any fear of danger, and find good anchoring ground, though very cloſe in*. A

* Mr. *John Watſon*, 3d mate of the *Royal Captain* in 1762, has communicated to us the following obſervations on Muſcat Bay, its harbour, and the adjacent coaſt.

"The Arabian Coaſt is very high land all the way from Muſcat up to Cape Muſſeldom: between theſe two places, and for 2 or 3 days before we made Cape Curiat (in March), the ſea was entirely covered with fiſh ſpawn.



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town called *Cittab* may be ſeen a long way off to the eaſtward, on a ſmall cove of this bight, in which you anchor in 10 ro 12 fathoms as you chooſe, the bottom fine ſand, and the water as ſmooth as in a pond, let it blow ever ſo hard from the N. W. As Muſcat is only 2 miles by land from this place, you may ſend there and be ſupplied with every thing you want. It ſeems ſtrange that though all the rocks about this place are lime ſtone, and that "the lime works out of the rocks itſelf without the help of fire," there is very little uſe made of it, and the large houſes in the town are built with mud, inſtead of Chinnam.

There is another town to the weſtward called *Mattrab* (Muttro), and defended by a ſmall fort, which is nearly as big as Muſcat, and about 3 miles from it, with ſeveral fiſhermen's villages in the valleys between the two. At Mattrah there is a very good "hard" to haul veſſels on, and though they have one at Muſcat, yet they always ſend their largeſt veſſels to the latter place to be cleaned. From Mattrah you find a very good road along ſhore, and a number of little villages here and there all the way; the low land is well cultivated, but the high land at the back is quite barren, and of a reddiſh colour, reſembling the ruſt of iron; a number of caſcades are falling there, whoſe waters come out burning hot; it is like other water in taſte and colour, the inhabitants drink no other, and their gardens, which are very fruitful, are watered with it. They have ſeveral hot-baths hereabout, and what may be reckoned ſtrange is, that in ſome of theſe hot-baths there are great number of little fiſhes, about the ſize of what they call tittlebats in England, which are full of fins, and very prettily ſpotted, but ſo very nimble, ſays the Lieutenant, that he could not catch one; the country people are ſo ſuperſtitious, as to believe whoever catches one will meet with inſtant death.

After leaving the town of Cittab, and keeping along ſhore, no ground was found with 40 fathoms line, till *Cape Coliat* (Coriate). The bank there, which is chiefly ſand, does not run above 2 or 3 miles from the ſhore, and ſhoals gradually from 30 to 25 fathoms all the way in. Beſides the high land which diſtinguiſhes this place, it may be eaſily known by a large range of date trees, ſome houſes, with a ſmall mud fort to be ſeen over them, and a rock pretty high out of the water, cloſe inſhore: there are ſoundings almoſt all the way to Cape Roſalgat.

Tewey, or Tewee, is juſt under the high land of Kalhat, which is not a cape, and between two ridges of rocks; no ſoundings are to be got within piſtol-ſhot of the ſhore, with 40 fathoms line*. Boats came off, and the people ſaid there was good water, which they would bring off if deſired: there are ſeveral ſmall villages all the way along ſhore, but no river or creek; and boats with fiſh will come on board any European veſſel that is paſſing that way. After leaving the high land of Coliat you ſee a long ſpot of land, of a moderate height; it extends to the eaſtward like a point, and under it you perceive a great number of fiſhing huts which appears like ſeveral towns together. From this place the natives reckon above ſix hours to a large city called *Zoare* or Zore, in which is a good Buzzar with a num-

"We anchored in the bay, in ¼ leſs 10 fathoms, gray ſand and mud; Iſle Muſcat N. W. ¼ W. body of the town S. by E. ½ E. about 2 miles.

"In the harbour we were in 14½ fathoms, gravel and ſhells; Iſle Muſcat N. W. ¼ W. extremity of the harbour a E. ¼ N. to W. by N. ½ N. the rock of the eaſt extreme E. by N. ¼ N. Muſcat town S. S. E. 2 miles; Mattrah town Weſt."

* This muſt refer to a particular ſpot only; as will be ſeen hereafter in Lieutenant *M'Cluer's* deſcription.

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ber of Banyans who carry on a great trade. The *Fox's* boat, who went on ſhore at the fiſhing town, found the people rather impertinent; it does not belong to Muſcat, but is under a different government, and the people are not called Arabs, but Buddues *. You have ſoundings cloſe inſhore from this place to Roſalgat, which is not above 3 or 4 leagues diſtant, and in the way there are ſeveral ſmall creeks: the river or creek which goes up to Roſalgat town, is about half a mile wide at the entrance, and opens in a kind of ſmall bay, wherein there is ſhelter for ſmall veſſels, but it is not ſafe to venture on ſhore, as the inhabitants are of a treacherous diſpoſition. The bank does not run a mile from the coaſt, but ſhoals very regular, and has $3\frac{1}{2}$ fathoms water, cloſe to the low ſandy point.

This low ſandy point makes CAPE ROSALGAT; the houſes appearing over the ſand-bank ſeem to be very well built with mud, and many of them have terraces, likewiſe a ſmall *cotta* or place of defence, to retire to in caſe of an aſſault. I ſhould think it beſt to make the land rather to the northward, in coming over from India in the months of April or May; for if you meet with ſoutherly winds, they generally come round to the eaſtward, and ſometimes blow hard from that quarter; the extreme point of Roſalgat is ſo low as not to be ſeen till cloſe in with it, and as the currents, at that time of the year, are reckoned to ſet to the weſtward, you might be driven unexpectedly to the land; whereas in making it a little to the northward, you have the Gulf open.

## THE GULF OF PERSIA.

### INSTRUCTIONS FOR SAILING BETWEEN INDIA AND THE GULF OF PERSIA,

*Extracted from the Nautical Memoirs of Lieutenant* JOHN M'CLUER.

THERE are only four months in the N. E. Monſoon which are favourable for the paſſage from the Malabar Coaſt to Muſcat; *viz.* November, December, January, and February, during which ſhips have been ſometimes only 8 or 9 days from Cape Comorin to Bombay. Any veſſel bound to Muſcat ought then to work up the Malabar Coaſt to the high land of St. John, then ſtretch off, keeping to the northward as much as the wind allows: in ſtriking ſoundings on the Guzurat Coaſt, 35 fathoms will be a good way off, and before you get 11° to the weſtward of Bombay, you muſt raiſe to 24° or 23° 50′ if the wind permits, for it hangs much to the northward, even in thoſe months: ſometimes when you open the Gulf of Cutch, it will blow ſtrong at Eaſt, and E. S. E. which is accompanied by dark cloudy weather. When the wind is northerly, it comes with a clear ſerene ſky; when N. E. beware

* The word *Buddues*, *Baduis*, or *Bedouins*, according to the different pronunciations, means the Arabs who live in the deſert; and probably ſome of their wandering tribes keep the town of Zoare in ſubjection; but, according to Lieutenant *M'Cluer*, the government of Muſcat extends to Cape Roſalgat.

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of ſudden ſqualls, which give very little warning; their ſtrength is only known by the motion of a ſmall cloud, which comes very ſwift when thoſe ſqualls follow it.

By running down the weſting in the latitude of 24° you will have a freſh wind, that will probably continue till you open the middle of the Perſian Gulf, which often ſends out a ſtrong North-weſter, and by being to the northward of your port, you may bear up, and fetch Muſcat with a flowing ſheet. Ten or twelve days, make the uſual paſſage from Bombay in thoſe months.

Many veſſels will ſhape a direct courſe from Bombay to Muſcat; but the wind being well to the northward, they fall in with the land about Cape Roſalgat, and if they get inſhore, they are ſure of being becalmed for many days; ſome have been fifteen days, in working from Cape Coriat (Coliat) to Muſcat, though the diſtance is not above 11 leagues. In the above ſaid months never come nearer the land than 5 leagues.

March, April and May are the months in which a STRAIT COURSE is to be made, if you can: but within 6° or 7° of the Malabar Coaſt, the wind hangs well to the weſtward, therefore a veſſel muſt ſtand away to the ſouthward to 10° or 12° north latitude, to fall in with a ſoutherly wind, which ſets in ſooner to the ſouthward than off Bombay. But off Cape Roſalgat in theſe months the ſoutherly winds are certain, even in March and April, but ſtronger in May; and after you have doubled the cape you will find regular land and ſea-breezes, unleſs they are obſtructed by a ſtrong North-weſter from the Perſian Gulf, which is certain once or twice a month. In the ſame months you may venture within 6 or 7 miles of the ſhore. Twenty days are reckoned a good paſſage from Bombay.

From any part of the Malabar Coaſt during theſe months, you ſhould ſtand off to the weſtward, till you get the ſoutherly winds, as it would anſwer no end to work up the coaſt at this time that the land-winds are over.

In the two months of September and October, the paſſage is very tedious; it being the change of the Monſoons the winds are variable all the way over, till within a few degrees of Bombay; then you have a freſh North-weſter and a hollow ground ſwell. In thoſe months you ought to work up to the latitude of 20° North, then ſtand off, and fetch the land about Cape Roſalgat. Do not go to the ſouthward of Bombay; but as you find the wind to vary, make all the weſting poſſible till in ſight of the Arabian ſhore, where the winds are quite variable in thoſe months. *N. B.* Theſe are the worſt months in the year for this paſſage; you are carried entirely by chance.

THE SOUTHERN PASSAGE to Muſcat and the Gulf of Perſia is often made by the Company's cruizers: it is a track of near 1500 leagues, which they are obliged to run down to gain 260, the diſtance from Bombay to Cape Roſalgat.

June, July, and Auguſt are the months for this paſſage: you ſtand down from Bombay to the Malabar coaſt in 35 or 40 fathoms, never exceeding that depth, or coming under 20 fathoms while on the coaſt. Before you get to the fourth parallel to the ſouthward of the Equinoctial line, you will make 6° or 7° eaſting from Bombay, which cannot be avoided, on account of the direction of the Laccadives, and of the S. W. winds, which at all times blow very hard.

In June and July, veſſels have been known to fall in with the S. E. trade, in 3° and 4° ſouth

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ſouth latitude, which has carried them to the weſtward in thoſe parallels; but in Auguſt the S. E. trade draws ſouthward, ſo that 8° 30′, and 9° South, are the proper track; and even in the earlier months, if you ſhould find it to vary, either in ſtrength or direction, you never ought to perſevere in the ſhort route.

"In 8° ½, or 9° latitude South, I have always found," ſays Mr. *M'Cluer*, "the ſteady trade-wind, and a clear ſky; whereas in 4°, or 4° 30′ latitude South, you will have ſeveral ſqualls and rain." Having run down the ſouthing, the next thing to be conſidered is the weſting: while you are in the way of the S. E. trade, get into 7°, or 7° 30′ variation, before you come to the northward of the Line, for after you have paſſed it you can never expect to gain any weſting, as the wind from the Line northward is at W. by S. or W. by N. with a heavy ſwell from the Weſt; this being the caſe, a veſſel muſt be a good one even to make her way good North.

It would be proper to go far enough to the weſtward as to make the Iſle of Socotra, at 10 or 12 leagues diſtance, which is 18° 30′ meridian diſtance from Bombay, and near 8° variation: from this iſland to Roſalgat the courſe will be near N. E. by N. then you may croſs the parallel of Mazeira Iſland without the ſmalleſt riſk; and when by the latitude you are paſt that danger, haul in, what the wind will permit, for the land. You are certain of a ſtrong eaſterly current in thoſe months from the Line to Cape Roſalgat. "I have been," ſays the Lieutenant, "4° to the eaſtward of our reckoning in a run from Aden to Pigeon's Iſland, on the Malabar Coaſt."

When veſſels come from the Bay of Bengal, or the Iſland of Sumatra, bound to Muſcat, it is requiſite they ſhould have a freſh departure before they make the Arabian ſhore, otherwiſe the variation is their only guide for this paſſage; but ſometimes it cannot be exactly obſerved.

A general guide is to make ſure of your weſting before you come to the northward of the line; always exceed 7° variation for that coaſt; when bound to Bombay that weſting is not required.

In the month of Auguſt, one ſhould never attempt to go the Short Rout, or the 4° ſouth latitude paſſage, but always run down the weſting in 8° 30′, or 9° latitude South: there you will be certain of the true S. E. trade-wind, with a clear ſky, that ſeldom leaves you, till it carries you to the S. W. Monſoon, which will be in 6° or 7° variation.

On making the land about Cape * Roſalgat, the wind that blows freſh at S. W. to the ſouthward of the Cape, will change gradually to S. E. as you round that headland; after you ſhut it in, or bring it to bear South, the S. W. Monſoon is entirely loſt, and you ſeldom have more than light variable winds to Muſcat; once or twice a month you may meet with a freſh South-eaſter, which will only laſt a few days.

The land behind Cape Roſalgat is very high, and may be ſeen in clear weather 20 leagues off; Point Coliat or Calhat, W. N. W. of Roſalgat, is likewiſe very high.

* The country people ſay there is A ROCK even with the water's edge, due Eaſt of Roſalgat, 4° diſtance. Mr. *M'Cluer* adds, "I have been in veſſels that have gone in that parallel of latitude, but could never ſee any thing but turtle; the laſt voyage I made, we ſtruck a turtle in 21° 31′ North, which made us think we were nearer the land than we really were; for, after that we made juſt 4° Weſt to the high land of Colliatta."

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From Calhat to Cape Coriat is a deep bay; and from the pitch of the latter to Tewee, which is 5 or 6 leagues to the ſouthward, there are regular ſoundings, and good anchoring ground in 14 fathoms 2 miles off ſhore, where you lie ſheltered from the North-weſter: in this bay there is an iſland much ſmaller than that of Muſcat.

Cape Coriat, in latitude 23° 25′ North, may be eaſily known by a remarkable gap in the back-land, the like of which is not on any part of the coaſt, and which is ſhut in when the cape bears South; this notch is called the *Devil's Gap* by the ſeamen, probably on account of ſome infernal blaſts that come from it in the months of January, February, and March, and which will lay a veſſel on her beam-ends, if not prepared againſt them; but they generally give ſufficient warning. This notch may be placed in latitude 23° 20′ North, and 11 leagues S. W. by S. from Muſcat: it is a very good mark for a ſhip who falls in with the land to the ſouthward of Muſcat.

Muscat Cove lies in latitude 23° 38′ North, and 13° 20′ meridian diſtance Weſt from Bombay, by the medium of many good accounts: there is no danger about its entrance, but what is in ſight, but you have no anchoring ground till within ½ a mile of the rocks. When the wind is ſoutherly it will be troubleſome to get into the cove, for as you approach the ſhore ſudden guſts come through the rocks that vary many points: if you are under 15 fathoms come to an anchor, but if above that, you ought to make a ſmall tack again, or ſtand into *Mattrah Bay*, where there is good anchoring ground in 10 fathoms; then with the land-wind in the morning, which ſeldom fails, you can weigh and ſtand into Muſcat; though at Mattrah you can be ſupplied with proviſions the ſame as at Muſcat.

The northerly wind is fair to ſtand into Muſcat Cove, but it blows, when from that point, ſo as to ſtart the ſhip's anchors in the cove. The ground is ſandy within and without the cove, but very bad holding ground: it is beſt to go in, if your ſtay ſhould be only 24 hours, as lying out is dangerous.

From Muſcat to Burka, a place remarkable by its trees, and where the Immaun reſides, the coaſt is near W. by N. and E. by S. 50 miles in length, and quite clear; about 3 miles off ſhore lies the anchoring ground in 5, 6, or 7 fathoms. Swardy Islands, the eaſtermoſt of which is 10 leagues from Muſcat, lie near Eaſt and Weſt of each other, extending about 7 leagues, and in four ranges, between any of which a veſſel may work in from 5 to 16 fathoms; the weſternmoſt is the moſt remarkable, and lies nearer the ſhore than any other. The *Dammaſetta Rocks* lie N. 70° W. from Muſcat Cove, diſtant 4 or 5 leagues.

Cape Jask from Muſcat bears N. N. W. *by compaſs*, but the courſe ſteered from the latter place to the entrance of the Gulf of Perſia, is N. W. by W. which will bring a veſſel within Cape Jaſk, 3 or 4 leagues, if the current does not run ſtrong to the eaſtward or weſtward. If the ſoutherly wind ſhould prevail, keep mid-channel, or from 3 to 4 leagues off Bombareck; this bearing Eaſt, ſteer N. N. W. for the Quoins; but with light turning winds, keep the Perſian ſhore on board: never go out of anchoring ground, which you have 4 or 5 leagues off to 3 or 4 miles from ſhore. In the middle of the entrance, that is the Gulf of Ormus, there are 60 and 70 fathoms, and as you approach the Arabian ſhore, the water will deepen to 90 and 100. Between 40 and 10 fathoms is a good depth

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to work in. All along the Perſian ſhore, from Cape Jaſk to Bombareck 4 miles to the northward of Jaſk, you have 30 fathoms, 3 or 4 miles off the ſhore, with ſhoals, from 30 to 5, in two miles run; but higher up in the entrance, you may run 10 miles between 30 and 10 fathoms*.

From Cape Bombareck to the Quoins the courſe is W. N. W. or N. W. by W. To keep a good diſtance from them, you ought never to come nearer them than 8 miles; by ſo doing you can anchor in 30 or 35 fathoms, if it falls calm; whereas in keeping near them, you have the water deeper and the current ſtronger.

In coming up with a freſh ſoutherly gale, you paſs Cape Jaſk 3 or 4 leagues, and then ſteer N. N. W. 18 or 20 leagues for the Quoins.

## THE WINDS AND CURRENTS IN THE GULF OF PERSIA.

IN this Gulf the North-weſters are the prevailing winds all the year round; November, December, and January, being the only months in which you can depend upon having ſoutherly winds; what you have at any other time is mere chance; and when they blow freſh, for 2 or 3 days, you are always certain of a North-weſter with a double violence. In thoſe months a ſhip has been running up with a ſoutherly wind, ſtudding ſails on both ſides, when the North-weſter has taken her aback, and to ſuch a degree as to bring her under her fore-ſail, and cloſe reeft main-top-ſail, forcing her to look for ſhelter under the lee of the neareſt iſland, for it is in vain to attempt working againſt it. Theſe North-weſters ſeldom exceed 5 days, and laſt generally 2 and 3 days; when they abate, it either changes to the ſouthward, or to light land-winds.

The northerly wind is named by the Arabs *Baw Shaumaul*; it blows once a year for 40 days, without intermiſſion; this they call the Great Shaumaul, which happens in June and July. It is needleſs for a veſſel to attempt to work up during this time; though our ſhips have been known to turn up the river, under their courſes, while theſe winds were blowing.

There is likewiſe a ſmaller Shaumaul which blows in March and April, ſometimes 20 days, without the leaſt variation in ſtrength, or point. When theſe winds ſet in, after the 4th or 5th day, the current will run ſtrong againſt the wind, ſo that a veſſel will gain 20 miles a day, under cloſe reeft-top-ſails and courſes.

"I am not well enough acquainted with the nature of the current to account," ſays the experienced officer to whom we owe this remark, "for ſuch an effect, but I ſhould think that the water, impelled by a ſtrong gale blowing conſtantly one way, and forced through ſuch a narrow gut as the Gulf of Ormus, meets there with the reſiſtance of an open ſea, and after riſing to a certain height, muſt recoil back againſt the wind. I have known by experience, after a ſtrong North-weſter has blown for three days, that after falling calm,

* We muſt obſerve here, that in the entrance of the Gulf of Perſia, there is a SAND on which a Moor's ſhip ſtruck; it is reported in the journal of the *Nathaniel*, Captain *Benjamin Dennis*, "to bear S. E. by S. from the Iſland Bombarrack, off Cape Jaſques, 21 leagues; diſtant from the coaſt of Perſia neareſt land, 15 leagues."



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the current has run one knot *per* hour to the northward, which muſt have been the return of the water forced out by the northerly wind.

"When the winds are variable, I would adviſe always to keep the northern ſhore cloſe on board; the cloſer you are the ſtronger the land-wind is felt. I have ſeen Dows and Tranketys, that are acquainted with the gulf, going along ſhore with a full ſail from the land-wind, while we were lying becalmed, and toſſing about at the mercy of the current."

The North-weſter and the South-eaſter are the only winds which blow ſteady in this gulf, and they are either right up or right down, in every turn of the gulf. The other winds, when light, become ſo variable, that they are not to be depended on for one hour: when theſe light winds prevail, you ought to work between the iſlands and the main, by which means you may anchor when the current is contrary.

During the winter months, the ſoutherly winds frequently come with ſome ſqualls and rain, but they ſeldom reach Baſſora before the North-weſter ſends them back again; for they have very little rain at Baſſora. In theſe months the high lands to the northward of Buſheer are all covered with ſnow, and ice may be procured at this latter town 6 months in the year; it ſeems ridiculous that they ſhould take ſo much trouble to preſerve ice, while they neglect things of greater utility, and leave them to deſtruction.

## DIRECTIONS FOR SAILING UP THE GULF OF PERSIA AND TO BASSORA.

CAPE MUSSENDOM lies at the entrance of the Gulf of Perſia, about 18 leagues weſtward of Bombareck ſhore: round it are five ſmall iſlands called the Quoins, *viz.* Great Quoin, Little Quoin, and Gap Iſland, which are lying together, and South Iſland, with Lump Iſland, which are cloſe by the cape. Among them you have from 40 to 50 fathoms water in coming up from cape Jaſk; after you have ſteered N. N. W. for the Quoins, 18 or 20 leagues, if in the night, ſtand up till you ſhoal your water to 34 or 35 fathoms, then you are certain of being to the northward of theſe Iſlands: having that water, keep away Weſt, till you are certain of being paſt the Quoins; then ſteer W. by S. 40 miles, then Weſt till you make the Great Tumb, which is 22 leagues from the Great Quoin.

If you round the Quoins in the day, you will ſee the Iſland *Larek* and that of Kiſmis; and in ſtanding to the weſtward you paſs that of Angar on the ſtarboard hand; Great Tumb is to be paſſed on the north ſide, and when it bears South, Baſſadore, or the weſt Point of Kiſmis will be N. by W. and the Little Tumb may be ſeen. Theſe iſlands lie nearly Eaſt and Weſt, *per compaſs*, 8 miles aſunder.

KIMSIS or KISMA * is the largeſt iſland of the gulf; it lies but a ſmall diſtance from the

* About 5 leagues to the north-eaſtward of the eaſt end of Kiſmis lies the Iſle of *Ormus*, diſtant 3 leagues from the continent: it has two ſafe ports, one on the eaſt, the other on the weſt ſide, divided by a neck of land which runs far out to ſea. The CITY OF ORMUS, ſituated on this iſland, was formerly, when under the Portugueſe dominion, one of the richeſt in all the Eaſt; but ſince *Shah Abbas*, King of Perſia, with the aſſiſtance of the Engliſh, took it in April 1622, it has loſt all its trade which is removed to *Gambaroon*, or Bunder-abbas, on the oppoſite ſhore.

continent,

continent, and there is a good channel between, through which many veſſels go when they are taken with a ſtrong North-weſter; but this channel is very narrow and troubleſome to work in; beſides, a veſſel, that is defenceleſs, is liable to be ſurpriſed by the plunderers who inhabit theſe parts. Finnam town on this iſland is ſituated near the coaſt, and is remarkable by a ſmall white fort between it and the ſea, and a little white moſque to the eaſtward of it.

ANGAR is an Iſland a league in length from N. E. to S. W. about 3 miles from Kiſmis; it is pretty high, and may be ſeen 7 or 8 leagues off in a clear day; it is remarkable by a white moſque on its eaſt end.

GREAT TUMB is about the ſame length with Angar from Eaſt to Weſt, and a mile $\frac{1}{4}$ in breadth; the ſouth point runs out low with the water's edge, with 13 to 15 fathoms from it, then no ground at 25. To the weſtward of this ſouth point there is water to be found among a few trees growing near it. The bank, which extends to the ſouthward of this iſland, is not dangerous, notwithſtanding the ſuddenneſs of its ſhoaling; it runs from the eaſt end about 2 miles, and ſtretches from the ſouth end near 6 or 7; you have no leſs than 10 fathoms on every part of it, except when near the iſland.

LITTLE TUMB is nearly the ſize of the Great Tumb; but of ſuch an irregular aſpect when you make it, that it appears like two or three different iſlands.

With a weſterly wind after rounding the Quoins, you ſtand up for the ſouth-eaſt end of Kiſmis; do not venture nearer the ſhore than 18 or 20 fathoms, which depth will be 2 miles off ſhore: this coaſt from the ſouth-eaſt end to Angar is ſteep to, and the above depth will be near enough for tacking all along: but after paſſing Angar you may ſtand into 5 fathoms in the day, and 7 in the night; and off Baſſadore, or the weſt point of Kiſmis, you may come into 3 fathoms, in a ſmall veſſel, but under that it is ſandy ground. You ought not ſtand too long the off tack, becauſe, in caſe of falling calm, you loſe the advantage of anchoring ground.

Between Angar and Kiſmis there is a good channel with $5\frac{1}{2}$ fathoms in it; on this iſland there is good water, and plenty of wild ſheep and goats. In working athwart the entrance of Kiſmis channel, pay attention to the ſet of tides, as they run at the rate of 3 or 4 knots at times, 6 hours each way. After ſtanding over the channel, from 5 to 7 fathoms, you will deepen to 13 fathoms, in SURASH BAY, where there is good anchoring ground, $\frac{3}{4}$ of a mile off ſhore in 10 fathoms. The clearings for the anchorage are Suraſh Moſque North, and Cape Sertes W. S. W.: here a veſſel is ſnugly ſheltered from the violence of the North-weſters; and you can get ſtock at a moderate rate.

Between POLLIOR and the main the channel is wide, but nearly in the middle there is a rocky knowl with 5 and 4 fathoms on it. Between the two capes, Baſtian and Sertes; is the town of *Charrack*, where refreſhments may be procured; the pilots ſay there is no danger above 5 fathoms; and in 8 and 10 you have muddy ground.

Being abreaſt of the little Tumb, the diſtance as beforementioned of the great Tumb, ſteer Weſt for 20 miles; then W. $\frac{1}{2}$ S. till you make Pollior, which ought to be on the ſtarboard bow: if you have a freſh ſoutherly wind, do not come nearer it than 5 or 6 miles, for



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fear you ſhould get becalmed; but in the night keep a good look out for the Iſland of Nobfleur, which lies S. W. by S. of Pollier, diſtant 14 or 15 miles; you muſt ſail between both, keeping Pollier rather the nigheſt on board till you paſs them.

To the S. W. by W. of Little Tumb 7 or 8 leagues, lies BOMOSA ISLAND, remarkable by a high hill in the middle, and ſeveral hillocks on the eaſt ſide of it; it is about 3 miles in length.

SURDE or *Surdy* Iſland, to the north-weſtward of this, lies about 6 leagues South of Pollior: it is about 6 miles long from N. W. to S. E. and 4 in breadth: off its north-weſt end is a dangerous reef of rocks ſtretching near 2 miles, but the ſouth-weſt ſide is clear of all danger. It is inhabited, and water as well as proviſions may be got there at a reaſonable price. You anchor off the ſouth ſide of the iſland, where the town is built; it may be known by three hills, the ſouthernmoſt being the higheſt, and at a good diſtance from the other two, which are nigh one another; to the ſouthward of the middle one is a white moſque.

With a fair wind paſſing between Pollior and Nobfleur, at the diſtance above directed, ſteer W. N. W. for 8 or 9 leagues; if in the night do not come under 20 fathoms on the ſouth ſide of *Kaſs*, to avoid a reef of rocks which runs 3 miles from the iſland to the ſouth-weſtward: from 17 fathoms you will ſhoal quickly to 7, hard ground: except this reef, the iſle is clear of danger, and you may anchor in any depth on the eaſt, weſt, or north ſides of it; 10 fathoms is near enough for any veſſel.

NOBFLEUR, a beautiful iſland, the beſt planted with trees in the gulf, and remarkable by a ſaddle hillock in the middle of it, is well inhabited; you may be ſupplied there with ſtock and water at a moderate price: it is about the ſize of Pollior, but not ſo high, being not ſeen above 4 leagues off; whereas Pollior is to be deſcried at 7 leagues diſtance in clear weather. Between Kenn or Kaſs, and the main, the channel is 4 leagues wide, with regular ſoundings, from 26 to 9 fathoms, ſandy ground.

When you are 6 or 7 miles to the ſouthward of Kaſs, ſteer N. W. by W. for 10 leagues you will then make the iſland BUSHEAB, diſtant 10 or 12 miles. This is the largeſt iſland in the Gulf except Kiſmis; it is of a brown ſandy appearance, with groves of trees on the inner ſide; the channel between it and the main is about 9 or 10 miles broad, with regular ſoundings, but not under 20 fathoms; the only danger is a reef of breakers ſtretching 2 or 3 miles from the north-weſt end of it.

The Iſland SHITWAR lies off the ſouth-eaſt end of Buſheab, and the channel between them is $\frac{1}{4}$ of a mile; there is 10 fathoms in mid-channel: in paſſing you cannot diſtinguiſh Shitwar from Buſheab, only by its being of a more fruitful appearance; the date trees on it ſeem to be on Buſheab.

If you paſs Buſheab 3 or 4 leagues to the northward, you ſteer N. W. till you get ſoundings on VERDISTAN SHOAL, which is an excellent guide: with a contrary wind, if it is moderate, and the current favourable (which you may eaſily tell in the day-time, by what you gain on the land), do not ſtand under 25 fathoms in the day, or 30 in the night, between the Iſland Buſheab and Cape Nabon, for in that depth you are not above 1 mile or $1\frac{1}{2}$ off ſhore,

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ſhore, and there is no anchoring ground between the iſland and the cape, but about 4 leagues from the iſland.

Cape Nabon is a low ſhelving point to the northward in the latitude 27° 23′; at the point it is regular table land, but a little way to the ſouthward and eaſtward, it is uneven, and of various ſhapes; it appears low by the land behind it being ſo very high: within 2 miles of the cape you ſhoal your water ſuddenly from 30 to 13 fathoms.

There is a river running parallel to the coaſt where the inhabitants have 3 or 4 Gallivats, which they ſend out to plunder any veſſel they think of an inferior force; their method is to put 3 or 4 old people in a ſmall Trankey or boat, with a few greens, fowls, &c. When a ſhip is ſeen in the offing, theſe people come out with their preſent, and the Sheik's compliments to the captain; by this means they get admittance, make obſervations on the ſtrength of the veſſel, &c. and from their report, if the people on ſhore think there is a probability of ſucceſs, they immediately ſend out their Gallivats, and ſeize her if they can; at any rate they loſe nothing by coming off, for they expect twice the value of their preſent in return from you; if it is not offered they won't be aſhamed to aſk it.

Oppoſite to the low point of Nabon is a town called Aſtola; from this to Tahrie in latitude of 27° 42′, the coaſt forms a deep bay to the north-weſtward, and next to Verdiſtan. This coaſt is ſheltered from North-weſters by the foul ground of Verdiſtan, which extends ſouthward from the cape 15 or 16 leagues, or near the latitude of Cape Nabon; ſo that a veſſel with a fair wind muſt be very cautious in ſtanding up too far in this bay.

From Kongoon, or in 27° 45′ latitude, you muſt ſtand out S. W. and W. S. W. to clear the ſhoal: you will have 25 fathoms on the inſide, and the next caſt 7, then 5 and 4, hard ground: with a working wind it is well enough to make a long ſtretch in, while you have day-light, and the bearings of the land are to be ſeen. In rounding it, in the day-time, never bring *Barnhill* to the ſouthward of Eaſt, till the *Hummocks* of *Kenn* are to the eaſtward of North; when thoſe hummocks bear Eaſt, or Barn-hill is E. by S. $\frac{1}{4}$ S. you are paſt all danger, the whole of it being between *Mongella*, a ſmall iſland covered with trees, and which is in latitude 27° 35′ to the ſouth-ſouth-eaſtward, near 10 leagues. The breakers off this cape lie in two ranges, one on the off ſide of Mongella, the other S. E. by S. from the former; and there is between them an excellent place for ſhelter againſt a North-weſter.

When it blows ſo hard that a veſſel cannot ſtand the weather, it is adviſable to anchor here, in 7 fathoms, where you are well ſheltered: the ground between the breakers is ſtiff clay, and the ſpace about $1\frac{1}{2}$ mile broad. A regular tide has been found there ſetting nearly in the direction of the ſhore, that is to ſay W. N. W. and E. S. E. at the rate of two knots *per* hour—It is high water on full and change days, at 7h. 30m. the difference between high and low water, being 10 feet.

If a veſſel does not anchor here, ſhe muſt ſtand a conſiderable way to the ſouthward, to clear the ſouthern breakers, and there is not the leaſt ſhelter, on any part of the bank, but under the lee of the breakers, or in fetching into Konkoon Bay, if you are able to do it: but a deal of ground muſt be loſt to get out again when the wind changes. Some people are afraid to deepen their water above 30 fathoms, on account of *Zezarine* and of *Ken* or Keyn Iſland,

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Iſland, which is ſaid to lie in 35 fathoms, and only 9 or 10 leagues from the cape, and in the exact latitude of the iſlands*. The deſcription given of them makes it plain enough that it muſt be a very clear day when you can ſee the land of Verdiſtan 17 leagues off, which is the diſtance reckoned from theſe iſlands to the cape. By that means they are near the center of the Gulf, for its broadeſt part is between Buſheer and Grain, and that does not exceed 50 leagues.

After rounding the cape, in doing which you never come under 12 fathoms in the night, nor 10 in the day; when the hummocks of Kenn bear E. S. E. in 14 fathoms, a N. by W. courſe, 18 or 20 leagues, will bring you over the neck of land on which BUSHEER is ſituated. From Mongella Iſland northward of the Bay, in by Kenn, there are ſome rocks above water, but they lie entirely out of the track to Buſheer: above Kenn to the northward, even to the point that forms Buſheer, there is good anchoring ground from 12 to 7 fathoms, mud, 6 to 4 miles off ſhore; 8 and 10 fathoms are a good depth. In ſteering N. by W. with a fair wind, you will keep near in 25 fathoms, till you approach *Riſhar Point*, within 4 leagues; when the water decreaſes gradually to 12 or 10 fathoms, then beware of not ſhoaling it under that depth, till the low land of Riſhar bears about E. by N.; you may then coaſt it in 5 or 4½ fathoms to the outer anchoring ground, where it is adviſable to anchor, with the town of Buſheer E. by N. in this ſituation a boat can ſail off and on during a North-weſter. The reaſon for not coming under 12 fathoms until you bring the low point of Riſhar E. by N. is, that ſuppoſing you were with a fair wind to coaſt it along in 12 or 10 fathoms, a N. by W. courſe will not clear this neck of Riſhar; or if you ſhould neglect ſounding, and get into the bay to the ſouthward, it may be attended with difficulty in getting out again, eſpecially if the wind is S. W. or even South, a weſt courſe will ſcarcely clear the point from 5 fathoms. Another caution to be given, is not to paſs Buſheer, but with the ſtricteſt attention to the lead, as the low point of *Rozolah* lies near N. W. of Buſheer town, and is hardly diſcernible in the day; a few ſhrubs is all you can ſee in 3 fathoms: when paſt this point you will deepen your water to 15 fathoms, and a N. N. W. will fetch CAPE BANG, according to the tides, for here you muſt work regular tides, unleſs the wind is favourable.

If you arrive off Buſheer with a ſtrong ſoutherly wind, never think to come to anchor in the outer road, where you have not the leaſt ſhelter, the point of Rowlah being a lee ſhore to the ſoutherly wind, and the North-weſters blowing directly into Buſheer: when the

* Captain *More*, of the ſhip *Dragon*, in April 1757, deſcribes them thus:

"KEYN (called alſo the *Hen*, and by others the *Cock*) and *Zezarine* are both very low and ſmall iſlands, each being only half a mile in length; they lie N. by W. and S. by E. of each other, diſtant about 5 leagues. Keyn is in latitude 27° 56′ and Zezarine in latitude 28° 8′. The Perſian ſhore cannot be leſs than 17 leagues diſtant. The former iſland is ſteep to, ſo that it would be dangerous to ſhoal your water to leſs than 30 fathoms, becauſe half a mile round it are ſunken rocks and overfalls, from 3¼ to 5 and 14 fathoms, then no ground at 20. Keyn is a round bank of ſand with a few ſhrubs on it; the eaſternmoſt point has rocks above water, on which are a number of ſhags, likewiſe a great many turtle.

ZEZARENE ought not to be approached nearer than 32 fathoms. It ſeems to be ſomething larger than Keyn, and in the middle of the iſland is a ſmall rock which can be ſeen before you make the iſland; it appears like a boat under ſail: you cannot ſee either of the iſlands above 3 leagues from the deck. The Iſle of MAY bears from Cape Nabon S. 2° E. diſtant 33 leagues. To the Eaſt of this iſland, at the diſtance of 10 leagues, there are ſoundings from 14 to 25 fathoms, rocky ground.

ſoutherly

southerly wind blows hard, you may expect the North-wester with near a double violence, so that it is a bad road for either of these winds. When a vessel stops at Busheer, which is of a small draught of water, that is any thing under 14 feet, they generally make the signal for a pilot for the inner roads, who is sent out with all expedition.

Busheer buzzar is well supplied with fruits and vegetables that come from the inland parts; for the neck of land on which Busheer stands is a dry and barren sand incapable of producing any thing. The water is very brackish and very bad; it will breed worms in the people's flesh several fathoms in length: when it is mixed with a spirituous liquor, or lime-juice, its quality is not so pernicious, for they have observed that it has a more malignant effect on the Lascars, who do not use strong liquors, than on the Europeans who drink them.

If the wind should blow hard at South, or S. W. stand over for the island of KAREK, or *Kartack*; and from Busheer town bearing E. by N. or E. N. E. a N. W. by W. course, *by compass*, will carry you directly to the fort, the distance being 11 leagues from 4 fathoms off Busheer. In coming near Kareck, if you find the southerly wind still prevailing, you are to round the point of the fort, within a cable's length, and come to an anchor between the islands, in 6 or 7 fathoms; but if you should have the least apprehension of a sudden change of wind from the north-westward, you must not attempt to lie between the islands, but weigh immediately, and stand under the other side of the point, where you anchor in 10 or 9½ fathoms, ¼ a mile from the shore. There you can be supplied with the best pilots for Bassora. To obtain one all vessels make the Sheik a present of a bag or two of rice, and give one also to the pilot's family. Their price is 150 or 160 rupees to carry a vessel to Bassora, and back again; besides the Trankey which attends will be 50 more, and provisions for 5 or 6 people: likewise during the time the vessel lies at Bassora the pilot has 10 rupees *per* month.

The water at Karek is much better than that of Busheer, nor has it its bad quality; the people here are very healthy; but all have sore eyes, which is occasioned by the reflection of the heat from the sands. They are plentifully supplied with fine fish, which, with dates, is their standing food, for they have no grain but what comes from Busheer, and their island produces very few greens. They will sell their bullocks, sheep, &c. but at an immoderate price, if they find you are in want of them.

At the north end of Karek lies the low sandy island of KORGO: the channel between the two is not above one mile in width, but very safe, keeping always the Karek shore the nearest on board; on the north end are 6 or 7 tall date trees, and thereabout is the watering place, where near 40 of our people were cut to pieces in 1768, when the English besieged Karek; the best anchoring ground is on the north-east end of that island. A regular tide runs through the channel 1½, or 2 knots *per* hour in the springs; and it is high water about 9 o'clock, full and change. The ground round these islands is very indifferent for anchoring, as it is hard sand in several places: the Isle of Karek is very steep to, but where the fort is, 20 fathoms are not ¾ of a mile off in many places.

When the pilot is on board with a fair wind for BASSORA, Bufforah, or Basrah, he will steer N. W. by W. till he shoals his water on the banks which he calls *Carabak*, having irregular soundings, and overfalls, from 12 to 7, and 8 to 10, 7, and 5; then he keeps away,

according

according to the time of tide, with the flood W. by S. and the ebb W. by N. till he gets on the *Attmeydan**, which is a flat of 15 or 16 miles in breadth, with regular foundings of 6 fathoms on the south edge of it, 5 in the middle, and 4 at the upper end; but he seldom goes under 5 or $5\frac{1}{2}$ fathoms. When he comes near the mouth of *Haffar* river, which leads to Baſſora he deepens his water quickly from 5 to 15 fathoms, if in $5\frac{1}{2}$, to 16 or 17 fathoms, this he calls *Core Gufgah*, which denotes being near the bar of Baſſora; ſtill continuing the W. by N. or W. by S. courſe, hauling up, or keeping away half a point, as he finds neceſſary: after theſe foundings in Core Gufgah, you will quickly ſhoalen to $4\frac{1}{2}$ fathoms, and this he calls *Mucan*; and from that, to $3\frac{1}{2}$ or 3 fathoms to Baſſora Bar: with theſe foundings he ſtill ſtands acroſs Weſt, or W. by N. till he deepens to 5 fathoms in *Core Abdillah*; there he anchors till the next flood tide, or if he has ſufficient tide to carry him over, he ſtands away to a clear bank between Core Abdillah and Baſſora river. When he finds himſelf on the centre of the Bar by his foundings, which are then a $\frac{1}{4}$ leſs 3 or $2\frac{3}{4}$ fathoms, in clear weather he will ſee the ruſhes that grow at the entrance of the river, bearing from N. W. by W. to N. by E. and the mouth of the river about N. N. W. when you deepen to $3\frac{1}{2}$ or 4 fathoms, you are then over the bar. The breadth of the bar is above 6 miles, from $3\frac{1}{2}$ on one ſide to $3\frac{1}{2}$ on the other; the eaſt ſide is the moſt dangerous.

From Karek, when the wind is N. W. or W. N. W. inſtead of working through the channel, you muſt round the eaſt end of Korgo, then haul to the northward with the flood tide, which here ſets N. N. E. or N. by E. Then ſtand cloſe up, under Cape Bang, if you can whether it, the ebb will be of advantage; if not, come to an anchor under the lee of it, in *Gunnoah Bay*, where there is good anchoring ground in 7, 6, and 5 fathoms; with the next flood make a ſmall ſtretch off, then in again, and you may coaſt it from Cape Bang to *Bunder Dellim* or *Delam* in 6 fathoms, or 5, in the day-time; Delam is a ſea port frequented by the country veſſels, which lies in latitude 29° 55′. From Delam keep cloſe up to the banks, and work with the flood, which ſets N. N. W. Prudence requires you ſhould never come under 29° 4′ latitude, nor to the northward of 30° 5′. While about 29° 50′ you may be certain of being to the eaſtward of the Bar, for you cannot to the weſtward exceed its latitude, which becomes a guide in that caſe; but your whole dependance muſt be on foundings. After working acroſs the banks till you judge yourſelf nigh the Bar, the foundings in Core Abdillah are an excellent guide, for there you will deepen to 20 fathoms; when you are well ſoutherly, then tack, ſtanding N. N. E. or N. by E. the flood ſetting N. W. you will ſhoal to $4\frac{1}{2}$ fathoms; then deepen to 15 in Core Gufgah, when you have that tack, ſtanding W. by S. or W. S. W. croſſing the Bar again in 4 fathoms, then deepen in Core Abdillah to 8 or 10; then tack and croſs the Bar in 3 fathoms; if the flood is ſtrong you will weather Gufgah, and inſtead of getting into deep water, have 3 fathoms on Mucan ſand; you tack again, and ſtand to the weſtward, having 3 fathoms, and $\frac{1}{4}$ leſs 3 mud,

* This is in the Perſian language the name of a ſquare in general, and eſpecially of the great ſquare of Iſpahan; it has been given to this flat on account of its being ſo remarkably level.

on

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on the bar; croſs over till you deepen to 4 or 4½ fathoms in Core Abdillah, after which you are to make ſhort tacks acroſs the bar, and then the ruſhes will be perceivable. Beware of the eaſt ſide tack whenever the ſoundings leſſen, as that bank is rather ſteep to.

When you have croſſed the Bar, into BASSORA RIVER, continue to work till the tide of flood is at an end: it is high water on full and change days at 12 o'clock on the Bar, and it happens an hour later every 15 miles up the river; the diſtance from the Bar to the town of Baſſora being 90 miles, the difference of the tides between the two places is 6 hours, ſo that it is high water, on full and change, at 6 o'clock off Baſſora creek. In coming into the entrance of the river, you ſee nothing on either ſide, but long bullruſhes; then in 4 or 5 fathoms, keep the larboard ſhore on board, till you get well in the river, then work cloſe over, from ſide to ſide, till you approach *Chillaby's Point*; this lies on the ſtarboard hand, and is known by the firſt plantation of date trees, which is on that ſide of the river; there are ſome ſcattered trees to the ſouthward of this, but not worth notice.

Off Chillaby's Point is deep water, 12 fathoms in the middle, and 7 cloſe to the ſand-bank that runs off the point, but never come nearer the point than 9 or 10; when you round that point keep that ſide the cloſeſt; oppoſite to Chillaby's point, there is a grove of trees called *Dorah:* from this to *Chubdah Iſland* you never ſtand farther over than to open the iſland with the point. From Chubdah to *Barain*, or near *Deep Water Point*, keep cloſe to the ſtarboard ſhore: you may ſtand ſo cloſe that the veſſel ſhould have juſt room to tack; between Chubdah and Deep-water Point are five iſlands; Chubdah is the largeſt, and well planted with trees; the others are ſmall and uncultivated: theſe iſlands ought never to be approached nearer than 4 fathoms at low water; the ſhore oppoſite to them has 6 or 7 fathoms within 5 fathoms off the trees. Deep-water Point is computed to be half way from the Bar to Baſſora; it breaks off to the weſtward, and there are 14 and 15 fathoms within 2 yards of the ſtarboard ſhore. Although the Iſland *Malah* has the ſhoaleſt water, it is better to keep cloſe to it than to Deep-water Point, where there is an eddy, out of which a veſſel that ſhould be drawn in, could not get out but by warping in the ſtream, and the tide runs ſo ſtrong that a warp cannot be carried out, till ſlack water. In keeping cloſe to Malah Iſland attention muſt be paid to the ſoundings; for from 7 fathoms it ſhoals very quickly, till you are paſt all the trees on the larboard ſide; and from this they continue to Baſſora, but, by the tombs, are thinner planted than any where elſe.

When you are paſt Malah Iſland the river becomes very narrow, and two or three tacks from this will fetch *Haffar River*, which is three quarters of the way up: here you may border equally on both, but the *Zaine*, or larboard ſide has the ſhoaleſt water.

From Haffar to *Sybelyat*, which is half-way between the former and Baſſora, there is a ſand bank that lies near the centre of the river, and a veſſel has not above two cables length to work in, and 3 fathoms, or 3½ is the depth in mid-channel. From Haffar to *Ab-el-Kaſſeeb*, and from that place to Chillaby's Iſland, 4 fathoms is the deepeſt water; ſtill keep the larboard ſhore neareſt: there are two iſlands, the northernmoſt named Surajee, and the other Chillaby; here the channel is very narrow, on account of theſe iſlands lying exactly in the middle of the river; they are 5 or 6 miles in length, and when you paſs the north



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end of Surajee, you can ſee the Moſque which is at the entrance of Baſſora Creek: here ſhe is moored in 4 or $4\frac{1}{2}$ fathoms within a cable's length of the weſtern ſhore; it is beſt to lay the ſtarboard anchor to the northward, and the larboard to the ſouthward, then the draught or ſet-out of the creek will generally ſwing the veſſel the right way.

## ADDITIONAL REMARKS ON THE GULF OF PERSIA.

*From Captain* DAVID RANNIE.

THE coaſt of Arabia, from Cape Muſſendom to Bahrein, is unfrequented, and therefore unknown to Europeans; but many ſhips go from Karek without Kiſmis, Pollior, and all the other iſlands, except the two Tumbs, Bomoſa, Surde and Nobfleur, between which laſt and Pollior they paſs in 50 fathoms water. They may alſo go to the ſouthward of all the laſt mentioned iſlands; but it is ſeldom done, and either way muſt always prolong the paſſage; becauſe the capes and iſlands very much break the force of the N. W. winds near the ſhores, along which there are uſually more or leſs tides, and often a current that will run 4 or 5 days to the eaſtward; but during the ebb, or if a current ſhould happen to run eaſtward, a ſhip can always anchor with ſafety under ſome cape or iſland; ſo ſhe can if the winds blow too hard down the gulf; but the middle channel has no ſuch advantages; for there are no perceptible tides, the currents ſeldom run up, but generally down the gulf, and the N. W. winds ſometimes blow with great fury, from which there is no ſhelter, no place to anchor with ſafety, without loſing much ground.

The latter end of January 1737, in the *Grandiſon*, Captain *Fenton*, at 7 A. M. the Iſland Karek bearing W. N. W. about 8 leagues, the wind at S. S. W. it quickly veered to S. W. and blew ſo hard that ſhe could carry only a reefed main-ſail and whole foreſail, with which cloſe hauled, ſhe fetched under the lee of Ormus, and anchored in the afternoon. But had ſhe been embayed between Jaſk and Ormus, ſo as not to be able to clear the ſhore, ſhe muſt have anchored without any ſhelter, and where the wind and ſea were ſo great, that it is doubtful whether all her anchors could have held her. That evening the gale ceaſed, and before morning a land-wind ſprung up from the northward; with this wind ſhe ran out, and paſſed with veerable moderate winds up the middle channel, leaving Lareck, Kiſmis, Pollior, and all the iſlands near the Perſian coaſt to the northward, and the two Tumbs, Bomoſa, Surde and Nobfleur, to the ſouthward of her; but being as high as Buſheab Iſland, ſhe was taken with a violent gale from the N. W. and after lying 24 hours under her main-ſail, ſhe was obliged to bear away, when, after having run within the north-weſt end of Kaſs Iſland, ſhe ſteered along the inſide of it, till ſhe came a-breaſt of the village, near the eaſt end, and then anchored till the weather was over, which ſhe might as well have done under Buſheab, had ſhe been inſhore at the beginning of the gale, ſince the *Richmond* and *Pultney*, that were then working inſhore, met with no ſuch bad weather.

In 1755, or 1756, a Dutch Europe-ſhip, bound up to Karek from Batavia, went to the ſouthward of all the iſlands, and having little wind, and a current down the gulf, ſhe anchored ſomewhere

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ſomewhere on the edge of the Pearl Bank, about 25° 30′ latitude. The wind was at N. W. by N. and N. N. W., and greatly increaſed, as likewiſe did the ſea, ſo that being unable to clear the ſhore, they were obliged to ſtrike yards and top-maſts, &c. &c. and at laſt had almoſt foundered with all anchors a-head; but luckily for them, they held faſt till the gale was over, or every ſoul would have periſhed on that deſert inhoſpitable coaſt.

The following directions for EL KATIF on the eaſt ſide of the Gulf of Perſia are ſuppoſed to be by Captain *David Simmons*.—When you ſail from the Perſian ſhore, it is beſt to keep for the upper part of the (Pearl) Bank near *Bahrein*, and as ſoon as you have got on it, which you will know by the 27 fathoms to 20 and 19 hard ground, ſhells and white ſand; keep on till you ſhoal to 7 fathoms, in which depth you muſt ſtand till you ſee the Sugar-loaf Hill, and when that bears S. W. by W. or S. W. of you, it is open with the bay. Keep ſteering to the weſtward, till you make the weſt ſide of the bay, which is clear and ſteep to, 4 or 5 fathoms, within 1 or 2 miles: landward, it is low and ſandy, not to be ſeen far. When you have paſſed the weſt point of the bay, ſteer for the Sugar-loaf till you bring the iſland on the weſt ſide of the bottom of the bay to bear N. W. or W. N. W. and the Sugar-loaf S. W. or S. W. by S. then you may anchor in $4\frac{1}{2}$ fathoms, white ſand and ſhells; the north point of the bay bearing N. by E. $\frac{1}{2}$ E. and the other extreme S. by E.

The latitude of el Katif is 26° 46′ North; it lies behind the weſt-north-weſt end of the little iſland, and is ſeen over it.

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## GENERAL DIRECTIONS FROM THE GULF OF PERSIA TO SURAT, BOMBAY, AND THE WESTERN COAST OF INDIA.

THE beginning of September is the propereſt time to return from the Gulf of Perſia to Surat, or to the other ports of the Weſtern Coaſt of India. In that month you may expect to meet with ſmall airs at W. N. W. and Weſt. When you have reached Cape Jaſk, you bend your courſe from it to the parallel of 23° North, and will find a current running ſouthward that requires ſome attention, leſt it ſhould horſe you farther South than the port to which you are bound. The winds will be found variable thereabout, between the Weſt and the South, and ſometimes calm. When you are near 23° 50′ North, a current may again be expected; ſo that ſuppoſing you have a mind to make an E. S. E. way good, you muſt ſteer S. E.

This current will attend you frequently into 22° 50′ North, beginning to go ſouthward there, and the winds northerly. With theſe winds, you paſs Diu Point, about 12 or 13 leagues diſtant, and when you are in 20° 37′ North, you will, by ſteering a proper courſe, have ſoundings, 50 fathoms, ſand and ſhells, in 19° 50′. By continuing the ſame courſe, which brings you here, you get ſoundings, 20 fathoms, ſand and ooze: Theſe are on the bank leading to Surat. Steer then E. by S. and in a very little time you will make Cape



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St. John; be ſure to keep in 22 fathoms, till you make it ſtand about 5 leagues off the land or more; then you may ſhape your courſe for Surat or Bombay, as you pleaſe; but if you are bound down the coaſt, your navigation is not ſo troubleſome. *N. B.* In this paſſage you muſt take care of the rock already mentioned, and which lies 4° due Eaſt from Roſalgat, according to the report made to Lieutenant *M'Cluer* by the country people.

## DESCRIPTION OF BOMBAY HARBOUR,

### *DIRECTIONS FOR SAILING IN AND OUT*, &c.

From Lieutenant M'CLUER's Account in 1787.

BOMBAY Flagſtaff, according to this gentleman's obſervation, lies in lat. 18° 56′ North. The longitude of the town is 72° 54′ Eaſt of Greenwich by Captain *Huddart's* obſervation*. The iſland by the fort is near a mile broad, and 6½ from North to South. The harbour is commodious and ſafe, and the ſoundings regular, except where the few dangers are; namely, the Middle Ground, Sunken Rock, North End of Tull Shoal, and S. W. Prong of the Reef: near theſe the ſoundings give little or no warning.

The tides are irregular in the ſet, and time of high water, at different places of the harbour; within the Middle Ground it is high water at 11h. 15m. and at Mazagon, or the upper part of the harbour, 30m. ſooner; at the reef 45m. later. Where the ſhips lie within the Middle Ground the tide runs N. by E. and S. by W. down the harbour, and off Tull Shoal, it runs nearly Eaſt and Weſt, which circumſtance proves of great advantage to ſhips working out in the S. W. Monſoon. Over, on the reef, for the firſt quarter, the tide ſets S. W. by W. but when the rocks appear, it ſets more ſoutherly, or along with the direction of the reef; and the flood runs the oppoſite way.

When the Sun is to the ſouthward, or in the months of December and January, there is a difference of near 2 feet between the day and night-tides, on the ſprings the night-tides being the higheſt; but in the months of June and July the contrary is the caſe. On moderate ſprings there is generally a riſe of 16 or 17 feet at the dock gates.

The Light-houſe ſtands near the South extremity of *Old Woman's Iſland*, now called COLLABA, near 3 miles from Bombay Flagſtaff; it may be ſeen in clear weather at 7 leagues diſtance, or in 20 fathoms water. The Light-houſe Point is ſurrounded on all ſides by an extenſive reef of rocks divided into prongs.

The firſt, called the S. W. PRONG, lies from the Light-houſe South 40° W. about 2¼ miles diſtant, and is dry at low water near 100 yards from the ſouth end. A veſſel ought never to approach ſo near this danger as to have a hard caſt upon it, nor come under 7 fathoms at low water: for from 6 fathoms, the ſhip may be aſhore before the lead can be hove again. In the day-time Mr. *Nichelſon's* mark is a good one, keeping the Funnel Hill

* Other obſervations place it in 72° 50′, and M. *Dalrymple's* Chart of the Indian Ocean in 72° 45′.

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touching the north Brow of Great Caranja, or that part of the Hill E. ¼ N. If the Funnel is not perceivable, do not ſhut in a white building to the northward of Malabar Point till the knob or weſtern hummock on Tull Point is between Two Paps on the high land of Tull; then haul in for the S. E. Prong Eaſt, or E. by N. according to the time of the tide.

The ſecond, or S. E. Prong, has more the form of a round bank than of a prong: here is little or no danger, as a veſſel may ſteer continually by the ſoundings. In the night, after rounding the S. W. Prong, ſtand in Eaſt, or E. by N. till the Light-houſe bears North, then endeavour to get a hard caſt upon the S. E. Prong, which will direct you for the Sunken Rock. With the Light-houſe N. ¼ W. or N. by W. and a hard caſt 6 or 6½ fathoms, ſtand N. E. by N. with a flood, and N. E. by E. with an ebb-tide, which will fetch near the buoy, or to the eaſtward of the Sunken Rock, that bearing E. 15° S. from the Light-houſe.

Small veſſels that wiſh to come within the Sunken Rock, will, by keeping the iſland cloſe, have overfalls of 2 and 3 fathoms upon the Light-houſe ſpit, which bears nearly E. S. E. from the Light-houſe; but if Mazagon houſe is not farther in upon the town than the Admiral's houſe, the danger is avoided, and thoſe bearings will lead clear of all, within the Sunken Rock, 3 fathoms at low water, ſoft ground.

When the Light-houſe and the higheſt part of Elephanta Iſland are in one, then you are off the *Elephanta Spit*, which bears W. S. W. from the Light-houſe. It is not very dangerous, as the ſoundings upon it decreaſe gradually, but 6 fathoms is cloſe enough. This Spit is an excellent mark for the reef in the night, coming from the northward. After paſſing Malabar Point in 7 or 7½ fathoms, low water, keep along South, or S. by E. till the Light-houſe bears E. N. E. with theſe bearings, and a hard caſt upon the ſpit, 6 or 6½ fathoms, ſteer out South, or S. by W. to go clear of the S. W. Prong, which will be done when the Light-houſe is N. E. by N. then haul in as before directed Eaſt, or E. by N. till the Light-houſe is N. ¼ W. or N. by W. then ſtand for the buoy of the Sunken Rock.

To have a hard caſt upon the S. E. Prong is of the utmoſt conſequence in rounding the reef in the night, becauſe it is a guide for the Sunken Rock; and people, by not keeping the reef cloſe, get over on the foul ground of Tull: here from mid-channel to either ſide, acroſs the harbour, there is not a fathom difference, therefore it will be neceſſary to ſound the S. E. Prong cloſe, eſpecially with a weſterly wind and flood-tide.

The Foul Ground off Tull may be reckoned the moſt dangerous ſhoal in the harbour, particularly when the knob or outer point bears S. E. With that bearing the ſhoal is ſteep to, from 6½ to 4 fathoms in one caſt: you ought therefore never to ſtand nearer it than 7 fathoms in the Monſoon; or the weſt end of Butcher's Iſland touching the low hill at Trombay, or Kennery S. by W. Theſe marks are very well in clear weather, but in the Monſoon the ſoundings and your judgment are the only guide: then the leadſman muſt be very careful in feeling the ground, whether hard or ſoft. Ships turning out in the Monſoon fetch near this point the firſt board, and are often obliged to tack before the anchor can be ſtowed: the ſecond board will fetch the Prongs; the third will clear the dangerous part of Tull,

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Tull, or bring the knob Eaſt, or even E. by S. and the fourth board will clear all the danger of the reef. It is reckoned beſt not to ſtand on the laſt-mentioned tack farther than to bring the Light-houſe N. E. or N. E. by E. but to work at the entrance of the harbour during the ebb. The pilot generally takes his leave with Kennery Iſland S. S. E. or S. E. by S. which is clear of the harbour and all its dangers.

After having cleared the harbour, the grand object is to get an offing, and to avoid anchoring. To accompliſh theſe, attention muſt be paid to the winds and time of the year. In the yearly months the ſqualls hang to the ſouthward of Weſt; then you ought to keep in with the land during the ebb, that it ſhould help you to get to the ſouthward as much as poſſible. By being well to the South of the harbour the next flood is ſcarcely felt, and if the wind will admit of a N. by W. courſe, you ſhould ſtand off four hours; then tack: in coming in with the land again the ebb would be made, and probably would permit to ſtand on, which you ſhould do, if you continued in the ſame depth of water; and the next flood you would gain a ſufficient offing in 30 or 35 fathoms, and ſtill be to the ſouthward of Bombay. In the later months you ſhould proceed in a different manner.

In the latter end of July and the month of Auguſt the ſqualls haul well to the northward of Weſt; ſhips have been known at this time to ſtand a direct courſe from the harbour with a fair wind: however as this is not always the caſe, when clear of the entrance, it is adviſeable to ſtand to the weſtward with the ebb, and to the ſouthward with the flood-tide; and could you lie up to the weſtward of South, the flood will have no bad effect. The ſtrong freſhes from the rivers will be more than equivalent to the ſwell and leeway. Ships have often been obliged to ſtand in S. E. by S. and S. E. to keep in proper depth of water going down the coaſt.

To the ſouthward of Bombay is a *Bank* of *Soundings*, which, to thoſe not acquainted, is ſomewhat alarming, eſpecially in working out for an offing; from 30 to leſſen to 25 and 24 fathoms, cauſes them to imagine that they have loſt ground, and are drifting in with the land again, when in reality they are going from the ſhore. This bank is an excellent guide for ſhips coming to Bombay in the S. W. Monſoon. It is to be obſerved that during the traverſes backwards and forwards upon this bank, Lieutenant *M'Cluer* never had leſs than 22 fathoms, therefore Mr. *Nichelſon* muſt have been miſinformed by thoſe who ſaid that there are 16 fathoms on it.*

Falling in with the land in that Monſoon, the firſt caution is to make a proper allowance for the currents, which in the months of May, June, and part of July, ſet northward within the extent of ſoundings on this coaſt, and are of great aſſiſtance to veſſels working up it before the S. W. Monſoon commences. Half of July, Auguſt, and September, owing to the heavy rains which fall in theſe months, and to the great out-ſets from the Gulf of

* This bank was ſurveyed in the *Peterel* cutter, Lieutenant *William Downes*, October 1773. It is 19 leagues in length; the north end is 5½ leagues broad, off ſhore *per* log 9 leagues, and the ſouth end 6½ leagues, *per* log off ſhore 7 leagues. It extends from the latitude 17° 55′ to 18° 43′ North, and the ſhoaleſt water we had on it (ſays Mr. *Joſeph Maſcall*) was 26 fathoms, in the latitude 18° 22′: approaching the ſhore you will have 31 fathoms, mud; within it 25, ſmall gravel and ſhells, and without 36 fathoms, mud.

Cambay,

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Cambay, as well as from the rivers to the North of Bombay, the currents are changed ſouthward from 20 to 30 miles *per* day, which rate ſeldom fails; an allowance accordingly may be made. The method followed now by moſt people is to keep off the coaſt till near the latitude of Bombay; by which means they have a better chance of obtaining their exact obſervations, as being in clear weather. The ſqualls and heavy rains on this coaſt ſeldom exceed the bank of ſoundings, or above two degrees from the land; and the weather in a great meaſure denotes your approach to the ſhore. After being in the latitude of the entrance of the harbour, they ſtand in due Eaſt, and having ſuch a great diſtance to run on that point, the ſhip is often ſome miles to the northward or ſouthward of the port, owing to bad ſteerage and other incidents.—If in the early months of the S. W. Monſoon you make to the northward of the harbour, it is a dangerous miſtake, as the winds hang ſoutherly when in with the coaſt, and the ſeas run ſo very high that it would be a very difficult matter to work to the ſouthward; but in ſuch a caſe advantage muſt be taken of the tides, keeping inſhore with the ebb, and off with the flood; if moderate, come to an anchor.—In the months of Auguſt and September it is not ſo dangerous to get to the northward of the port, as the ſqualls haul more northerly, and the current ſets ſtrong to the S. W. owing to the freſhes from the Rivers and the Gulf of Cambay. To prevent all accidents of this kind, recourſe muſt be had to the Bank of ſoundings to the ſouthward of Bombay, and the moſt eligible plan for falling in with the land about Bombay is this.

If you can by any means obtain the latitude, either by meridional altitude of the Sun, or double altitudes, fore or afternoon, or by the ſtars, within 5, or even 10 miles of the truth, it is of little conſequence; ſtand in for the land without fear, ſounding every four hours in the night, till you get ſoundings: in the day the ſnakes will point out your depth of water, the large ones being in above 45 fathoms and the ſmall ones in and under that depth. Having obtained the latitudes nearly, ſtand in for the land between the latitude 18° 15′ and 18° 30′ North, till you ſtrike ſoundings on this bank to the ſouthward of Bombay, from 22 to 26 fathoms, coarſe ſand and ſmall ſhells of various colours: with theſe ſoundings ſtand along the bank, under an eaſy ſail, about North or N. N. E. noting your ſoundings each hour, till you get off the bank, and deepen the water to 30 or 32 fathoms; then you are certain of the ſituation of the ſhip, and may ſhape a direct courſe for the entrance of the harbour.

## DIRECTIONS FOR SAILING INTO BOMBAY IN HAZY WEATHER,

### By Mr. NICHELSON.

IF you keep in 18° 50′ North, you will run in exactly midway between Old Woman's Iſland, *(Collaba)* and Kennery. Being in the offing, ſo that you cannot ſee the proper marks for going into harbour, obſerve the following directions. If the Funnel Hill is not to be perceived, keep the north part of Great Caranja Hill, E. by N. and run in with that bearing, which will carry you clear of the reef off Old Woman's Iſland, until you open the harbour; and if you cannot ſee Mazagon Houſe nor Hill, then keep the north-eaſt baſtion of

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of Bombay caſtle North, or N. $\frac{1}{4}$ E. and this will carry you clear of the Sunken Rock. When you are within that, you will ſee the other marks to carry you clear of the Middle Ground, &c. or being in the opening of the harbour, and you can ſee nothing elſe but the north-eaſt baſtion and Dungeree fort, keep the ſaid fort juſt open, or touching that baſtion and this mark will carry you clear off all danger into the harbour.—*N. B.* Great ſhips ſhould not go up the harbour higher than to bring the Brab-tree in the caſtle, and the Flag-ſtaff in one, for higher up the water is ſhallow. There are ſome ſpots where ballaſt has been thrown, upon which ſeveral Indiamen have found themſelves aground at low water ſpring tides.

## SAILING OUT OF BOMBAY.

BEING bound outward, keep Suree Fort a ſhip's length open to the weſtward of Croſs Iſland, which will carry you clear of the Middle Ground; and when you open Malabar Point, to the ſouthward of Mendam's, you are to the ſouthward of it, and may haul to the eaſtward: ſteer down the harbour with Mazagon Houſe, a ſhip's length open with the north-eaſt baſtion, till Malabar Point is open to the ſouthward of the Brab-tree, on the outer part of Old Woman's Iſland; this will carry you clear of the Sunken Rock. When you open Malabar Point with the outer part of Old Woman's Iſland, you may keep cloſe up under the reef, if the wind is weſterly, which is generally the caſe in the afternoon: and for a leading mark, keep the Flag-ſtaff a ſail's breadth open to the eaſtward of Oyſter Rock, till you have ſhut the Funnel Hill in with the north part of Great Caranja Hill; then you are clear of the whole reef off Old Woman's Iſland, and may haul to the weſtward as you pleaſe.

## DIRECTIONS FOR SAILING FROM BOMBAY,

### DURING THE S. W. MONSOON, BEING BOUND TO THE SOUTHWARD,

### By Mr. NICHELSON.

AT this ſeaſon of the year, as ſoon as you are without the harbour, there runs a prodigious ſea, which, with a ſtrong ebb tide, is breaking as if you were in ſhoal water. Make your utmoſt endeavours to get an offing, taking advantage of all the ſhifts of wind, and always obſerving to ſtand on that tack you can make moſt weſting of. The wind will ſhift 2, 3, and ſometimes 4 points at a time in the ſqualls, which are frequent, with almoſt inceſſant rain; but by no means be prevailed on to come to an anchor. The beſt latitude to get an offing is 18° 30′.

When you have got that offing, and are in 35 or 40 fathoms, you may ſteer the alongſhore courſe, if the winds permit, making an allowance of at leaſt $\frac{1}{2}$ or $\frac{3}{4}$ of a point for the prodigious ſwell that comes from the W. S. W. If you can make your courſe good S. S. E. keeping your depth of water, you may depend it will carry you clear of all the coaſt.

Although the wind will favour you as you run along, and the more you get to the



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ſouthward, yet be not covetous to take too great an offing; and by no means go out of ſoundings, but keep in 40, 45, or 50 fathoms, till you get 12° 30′ or 12° North. When you ſtand in towards the land come not nearer than 16 or 15 fathoms; as the weather is generally very hazy at this ſeaſon. There is alſo a ſtrong ſouthern current, which favours a ſhip 20, 22, and ſometimes 26 miles in the 24 hours, more than the run will give; therefore you ought to make this allowance all along the Malabar Coaſt, in the S. W. Monſoon.

Being in latitude 12° North, or thereabout, and having 45 or 50 fathoms, you may be ſure you are within the Laccadives; but if you loſe ſoundings on the coaſt, you cannot be ſo certain, whether you are without or within theſe iſlands, and run a great riſk of falling amongſt or upon them, on account of the thickneſs of the weather.

Soon after this latitude you loſe your ſoundings, for farther to the ſouthward, there are none at that diſtance from the ſhore: you may then with greater ſafety ſteer S. S. E. which will carry you clear, both of the Malabar coaſt, and of the Laccadives, to Cape Comorin. As ſoon as you are half a degree to the ſouthward of Cape Comorin, you get clear of all the rain and hazy weather, and have then a fine clear ſky, with fair weather.

## GENERAL DESCRIPTION OF THE COAST OF INDIA,

## FROM BOMBAY TO SURAT;

### WITH SAILING DIRECTIONS.

FROM Bombay, when bound to the northward, it is beſt to leave the harbour within an hour of low water, as you will then get to the weſtward of the reef by the time the flood makes, which, with the wind a little open, will probably carry you as far as Mayhim roads, to the North of Bombay iſland, by the return of the ebb.

If you ſail into MAYHIM, keep the Portugueſe church a ſmall ſail's breadth open to the ſouthward of Mayhim flag-ſtaff, till you have the round hill, (to the N. E. of the town) open to the northward of the old Portugueſe church, and in the middle of the low lands: ſteer with the above marks, till you open that church clear to the northward of Mayhim Fort; you may then ſteer up for the middle of the river, and anchor a-breaſt of the church in $2\frac{1}{4}$ fathoms, at low water. Another good mark for going over the bar, adds Lieutenant *Edward Harvey*, is the point of the fartheſt hill (which ſtands on the iſland N. by E. from the town) on with the north part of Mayhim fort, till you have the mark as before directed: to go clear of the ſhoal to the weſtward of the town, you muſt open the writing office clear to the northward of Mayhim fort.

From Mayhim roads to Baſſeen river the diſtance is about 5 leagues North, and 3 or 4 miles to the northward of them lies *Verſovah* Iſland, with a fort at the entrance of a ſmall ſalt river. The ſhore all the way is low and even, except ſome hummocks; within land it ſhews itſelf alſo in hillocks, but higher. You may ſail along this coaſt in 10 or 11 fathoms free from danger, except the fiſhing ſtakes, which are found very far

 out,

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out, and within which the paſſage is unſafe. Here is good anchoring ground, if becalmed, or if the tides be againſt you, which between Bombay and Baſſeen ſet N. by E. and S. by W. when 3 or 4 leagues off ſhore. The flood thence runs to the N. W. by N. and the ebb S. E. by S. as far as St. John's point, the freſhes out of the country making the water very thick.

Off the entrance of BASSEEN RIVER the water ſhoals a great way off: for going into that river, bring, before you come under 5 fathoms, the ſouth ſteeple of Baſſeen town in one with the firſt little peak to the ſouthward of the great one; then ſtand in for Puſpear Rock, and as you approach it, edge away round the ſouthern ſide of it till it bears North or N. by W. then ſtand ſtraight over for Daravee battery.

About Baſſeen the coaſt is even, and at the end is a valley wherein the town is ſituated, to the ſouthward of which is a high round hill with a fort: when this bears Eaſt you then have the entrance of the harbour open between two little rocky iſlands, through which you muſt paſs one on the north ſide, the other on the South: this port having but little water, is only fit for ſmall veſſels.

From the ſouth point of Baſſeen river, about 4 leagues to the N. N. W. you meet with the ſmall iſland and fort of *Arnoll*; and about 12 leagues farther, in a northerly direction, lies Point St. John; in all this part keep off ſhore at leaſt $3\frac{1}{2}$ leagues, on account of the rocky banks, which ſtretch into the ſea 2 or 3 leagues; at the former diſtance, from the latitude 19° 40′, the depth is 17 or 18 fathoms. If neceſſity ſhould oblige you to turn it, you muſt come no nearer than 16 fathoms, for fear of falling ſuddenly on ſome places of 7 or 8 fathoms, foul ground. The tides, which generally ſet N. N. E. and S. S. W. ſometimes incline towards the ſhore; this you muſt obſerve, and not anchor, unleſs you find it impoſſible to ſtem the current.

POINT ST. JOHN, called alſo the *High land of St. John*, lies in 20° 2′ or 3′ North: 3 or 4 leagues inland to the ſouthward of this point are two high peaks, one called *Terrapore Peak*, in the form of a pyramid; the other *Valentine Peak*, ſhaped like a caſtle: all the coaſt is high from thence to the point, the extremity of which is higheſt; along ſhore the land is low and covered with trees.

About 20 miles N. N. E. from Point St. John lies the town and Port of DAMAO, or *Daman*, which belongs to the Portugueſe, and is the next to Goa on this ſide of India. It is ſituated near the mouth of a river wherein ſmall veſſels may lie very ſecure during the Monſoon.

When you have doubled the high land of St. John, being bound to Surat roads, keep the mid-channel, where you have 16 or 17 fathoms, mud. Above all take care of ſailing too far to the weſtward, and of nearing the outer banks farther than 20 or 22 fathoms, mud; for if you find, upon ſounding, ſand, gravel, or rock, you will be near thoſe ſhoals, over which you cannot paſs, even at high water; and then you muſt immediately ſtand to the eaſtward to regain the channel: neither on the eaſt ſide muſt you come under 10 fathoms; but if your ſoundings are gravel or rocky, you muſt ſtand right off to the weſtward: too near the land is dangerous, the currents horſing you thereon in a calm; and a good

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good way out lie ſeveral rocks under water. Take good notice of this obſervation till you have got to the northward of Daman; then you may near the coaſt at pleaſure, as the bottom all along is ſoft mud as far as Surat roads.

The coaſt between point St. John and Surat river is low and even; and remarkable, about 3 or 4 leagues to the ſouthward of the entrance, by three ſmall hills.

## DIRECTIONS FOR SAILING FROM BOMBAY TO SURAT,

## WITH A TIDE-TABLE FROM BOMBAY TO SURAT ROADS;

### By Captain CABLE.

AFTER getting clear of the reef you ſhould not ſtand farther off ſhore than into 12 fathoms, working between that and 7 fathoms, until you get the length of Terrapore Peak, juſt now deſcribed. You muſt then keep a great offing, working from 13 to 14 fathoms, and from 18 to 20. When the body of the high land of St. John bears E. N. E. you are then entering into the ſouth end of the foul ground, which runs off into 12 fathoms; therefore it is not ſafe to come under the depth of 13 or 14; keeping without that, till the high land of St. John bears E. S. E. leſt you ſhould be obliged to anchor by its falling calm, or the flood tide being expended, and be then liable to loſe the anchor by having your cables cut.

Without you have a leading wind, it will be neceſſary you ſhould anchor every ebb tide, for which purpoſe I ſhall add a tide-table between Bombay and Surat. Being clear of the foul ground of St. John, if you have a leading wind, ſteer in ſhore N. N. E. or N. E. by N. and if you find the tide of flood carries you to the N. W. ſo as to deepen regularly from 17 to 18, 19 or 21 fathoms, keep your courſe the more eaſterly, until you ſhoal your water gradually to 9 or 10 fathoms as far as Daman: this town is known by two very high ſteeples, as well as by the hills to the northward of them that form four knobs declining to the ſouthward; and by Endergur fort, on the hill to the South of the river about 2½ miles. When you are abreaſt of Daman, and in the depth aforeſaid, keep the ſame all the way to Surat roads; your courſe being between N. by E. and N. by W. But ſhould you, by contrary winds, be obliged to work after you are paſt St. John, ſtanding to the N. W. do not deepen your water more than 21 or 22 fathoms; you ſhoal very faſt from theſe, St. John bearing S. E. ¼ E. when you muſt immediately tack, and ſtand to the eaſtward in 9 or 10 fathoms, remembering not to come into that depth unleſs St. John bears to the ſouthward of E. S. E. After you have brought the round hill of *Penella*, which is a remarkable mountain ſtanding by itſelf about Daman, to bear about Eaſt of you, do not ſtand to the ſouthward into more than 13 or 14 fathoms, working between that depth and 7 fathoms, until you get into Surat roads.

*N. B.* There is foul ground under 7 fathoms water off *Vaccas* or *Agacim*, called alſo *Agaſſes*, a low iſland with cocoa-trees upon it, 6 miles to the northward of Baſſeen. I mention this, that you may not ſtand under that depth, when abreaſt of it, leſt neceſſity ſhould oblige



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you to anchor. It is requiſite, alſo, you ſhould keep your lead frequently heaving, when you get paſt Terrapore.

To anchor in Surat road; Domus-tree N. E. $\frac{1}{4}$ N. to N. E. by N. Vaux's Tomb, on the north ſide of Surat river, N. by W. to N. $\frac{1}{2}$ W. you have about 9 fathoms at high water, and $7\frac{1}{2}$ at low water.

A Tide-Table from Bombay to Surat Roads.

| Names of Places. | MOON's AGE. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. |
| In Bombay Road | 12.3 | 12.51 | 1.39 | 2.27 | 3.15 | 4.3 | 4.51 | 5.39 | 6.27 | 7.15 | 8.3 | 8.51 | 3.39 | 10.27 | 11.15 |
| Off the Reef | 11.48 | 12.36 | 1.24 | 2.12 | 3.0 | 3.48 | 4.36 | 5.24 | 6.12 | 7. 0 | 7.48 | 8.36 | 9.24 | 10.12 | 11.0 |
| the Main | 12.33 | 1.21 | 2.9 | 2.57 | 3.45 | 4.33 | 5.21 | 6.9 | 6.57 | 7.45 | 5.33 | 9.21 | 10.9 | 10.57 | 11.45 |
| Baſſeen | 1.3 | 1.51 | 2.39 | 3.27 | 4.15 | 5.3 | 5.51 | 6.39 | 7.27 | 8.15 | 9.3 | 9.51 | 10.36 | 11.27 | 12.15 |
| Terrapore | 1.48 | 2.36 | 3.24 | 4.12 | 5.0 | 5.48 | 6.36 | 7.24 | 8.12 | 9.0 | 9.48 | 10.36 | 11.24 | 12.12 | 1.0 |
| Cape St. John | 2.48 | 3.36 | 4.24 | 5.12 | 6.0 | 6.48 | 7.36 | 8.24 | 9.12 | 10.0 | 10.48 | 11.36 | 12.24 | 1.12 | 2.0 |
| Daman | 3.18 | 4.6 | 4.54 | 5.42 | 6.30 | 7.18 | 8.6 | 8.54 | 9.42 | 10.30 | 11.18 | 12.16 | 12.54 | 1.42 | 2.30 |
| Gandivi | 3.48 | 4.36 | 5.24 | 6.12 | 7.0 | 7.48 | 8.36 | 9.24 | 10.12 | 11.0 | 11.48 | 12.36 | 1.24 | 2.12 | 3.0 |
| Noſſari | 4.18 | 5.6 | 5.54 | 6.42 | 7.30 | 8.18 | 9.6 | 9.54 | 10.42 | 11.30 | 12.18 | 1.6 | 1.54 | 2.42 | 3.30 |
| In Surat Roads | 4.48 | 5.36 | 6.24 | 7.12 | 8.0 | 8.48 | 9.36 | 10.24 | 11.12 | 12.0 | 12.48 | 1.36 | 2.24 | 3.12 | 4.0 |

## BLOWING WEATHER IN SURAT ROADS.

### DIRECTIONS FOR GOING OVER SURAT BAR.

ACCORDING to Lieutenant *M'Cluer's* obſervations, SURAT ROADS, in 8 fathoms, lie in latitude 21° 0′ North: Vaux's Tomb, or Swallow Point, by an artificial horizon, in 21° 4′; and the Chief's Garden-houſe in 21° 11′.—The anchoring ground for large veſſels is 7 or 8 fathoms, low water, Vaux's Tomb N $\frac{1}{2}$ E. and the entrance of Falſe River E. by S. and E. S. E. Here the ſpring tides are very rapid, running 4 and 5 knots *per* hour; but it is not ſo much felt by the ſmaller veſſels, which lie farther in, about 4 or 5 fathoms, with the Tomb N. or N. $\frac{1}{2}$ W.

It is very remarkable that the blowing weather ſets in much ſooner at Surat, than at Bombay, and you often have very ſmart gales of wind in the months of April and May. It is certainly very dangerous, for veſſels of a great draught of water, to lie in the roads after the middle of April, as their ſole dependence is upon the ground tackling: on the ebb tides there is the greateſt danger, as you have a windward tide, and it is not uncommon to roll



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away the maſts. Small veſſels may always eſcape by running over the bar, or if the wind and tide permit, may run to Gogo, where they are ſheltered by the iſland and reef of Peram. Several ſhips have, in riding at their anchor too long, either foundered or gone aſhore, by the wind hauling round to the weſtward, when they could not weather Swallow Point.

In the above-mentioned months, April and May, the approach of a gale is known by cloudy weather, gloomy and black to the ſouth-eaſtward, with lightning, and light variable winds hanging chiefly in the ſouth quarter. With theſe tokens, it will be beſt to ride at ſingle anchor; for if you be forced to ſlip or cut, one anchor only is loſt, and you have another bower ready to bring up occaſionally. Top-maſts, &c. may be ſtruck, but the fore-yard with the fore-ſail bent ſhould be kept up, as alſo the fore and mizen ſtay-ſails, which ſails will be ſufficient to ſtand with either to Gogo or over the bar. The firſt of the gale generally ſets in from the S. E. and hauls round gradually to the S. W.; when it comes about South, it is then time to look out for a place of ſafety. Moſt veſſels when they anchor in the roads, at this period of the year, have a pilot conſtantly on board, owing to the many accidents which have lately happened.

For going over SURAT BAR, when you weigh from the roads, ſtand to the northward, till you bring Vaux's Tomb N. by W. and the great tree which ſtands a little to the ſouthward of Dombes, or Domus, N. E. by E. Then ſteer in for it N. E. by E. $\frac{1}{2}$ E.; when you have the tomb N. N. W. then you are at the edge of the bar; the water riſes 3 fathoms up and down; in ſteering in N. E. by E. $\frac{1}{2}$ E. obſerve your ſoundings, as you have a long ſand on each ſide of you; ſteer in as aforeſaid, till you bring the Tomb N. W. $\frac{1}{2}$ W. and the Great Tree N. E. $\frac{1}{2}$ N. then haul up N. by W. or N. N. W. according to the ſtrength of the flood, edging away to the eaſtward, as the water ſhoals, till you bring the Tomb N. W. by W. and the Tree N. E. by E. then keep away North. Obſerve to keep the northernmoſt ſand as nigh as poſſible, if the wind be freſh, (for if you come too near the ſouthernmoſt, it will be dangerous to get clear from it) till you bring the Tomb W. by N. and the Tree Eaſt. Then you may ſteer in N. N. E. for Domus, hauling out to the northward, as you ſhoal your water, or near the ſhore.

When you come into Domus, ſtand up till you bring the old tall Brab-tree well to bear N. E. by N. or rather till you are clear of the weſtern, or Middle Sand, which lies between Domus and the Toddy Bank; then ſtand over about N. W. ſteering for the lower point of the tall Brab-tree at *Swalley:* be ſure to keep as near the Weſtern Sand as poſſible, to prevent the flood throwing you on the Middle Iſland, the channel being very narrow.

When you come over to the Toddy Bank, keep near mid-channel, till you come to the head of the iſland, or begin to open Domus creek, then ſtand over for the Great Tree at Gantalowra, and keep the ſtarboard ſhore on board till you paſs Roon: then ſteer in mid-channel till you are round Omrah Point, keeping likewiſe the ſtarboard ſhore on board till you come to the birth, where you intend to moor, or make faſt.

SAILING

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# SAILING DIRECTIONS FOR THE GULF OF CAMBAY,

By Mr. SKINNER.

"FROM Surat to the northward keep in 10 or 13 fathoms water, and 3 or 4 miles from the ſhore, which will carry you between the *Inner* and *Outer Sands* of Swalley; the outer is 6 miles from the ſhore, and the inner $1\frac{1}{2}$ mile, both which are dry at low water, ſpring tides. When Cutcheree-Tree bears E. by N. (which is known by a large ſingle brab-tree upon a low point) keep out W. by N. till you have the following bearings, *viz.* Bogway Point N. E. $\frac{1}{2}$ E. Donda E. by N. $\frac{1}{2}$ N. Cutcheree-Tree E. by S. $\frac{1}{2}$ S. then clear of *Goolwaller Sand* to the weſtward, ſoundings from 10 to 14 fathoms, ſteer N. by W. which will carry you ſafe into BAROCHE ROAD from 14 to 8 fathoms, where you may ſafely anchor with the following bearings; Baroche Point N. by E. $\frac{1}{2}$ E. Cutchajal S. E. Peram Iſland W. $\frac{1}{2}$ N. from the point 4 or 5 miles, 6 fathoms at low water; the bar lies in 21° 33, latitude North. High water on full and change, 30 minutes paſt 4 o'clock: it ebbs and flows 5 fathoms, and runs 6 miles an hour.

"To the ſouthward of the bar is *Baroche Sand*, which lies North and South: it is $3\frac{1}{2}$ miles long, and $1\frac{1}{2}$ broad, and within 30 yards of either ſide, from 2 to 3 fathoms deep; between it and the Inner Sand (which runs from the ſhore 5 miles here, and continues as far to the ſouthward as Tanar, the breadth decreaſing, and it being dry at low water ſpring tides) there is a good channel to the bar from 7 to 3 fathoms water, and $1\frac{1}{2}$ mile broad; the mark for it is to bring Peram Iſland W. N. W. $\frac{1}{2}$ W. ſteer in with it until Baroche point is N. by W. $\frac{1}{2}$ W. then haul up for it till you have Peram Iſland W. $\frac{1}{2}$ N. this will carry you abreaſt of the bar in 3 and 4 fathoms at half a mile diſtance.

"There are two ſands off Bogway, called *Goolwaller* and *Bogway*, which are dry at low water, ſpring tides; the former lies North and South, being $4\frac{1}{2}$ miles long, and half a mile broad; it lies off ſhore from Donda $6\frac{1}{2}$ miles: the latter, which lies N. by W. and S. by E. is $5\frac{1}{2}$ miles long, $1\frac{1}{2}$ mile broad at the north end, and $2\frac{1}{2}$ miles at the ſouth end; the diſtance from the ſhore is $3\frac{3}{4}$ miles, and within 20 and 30 yards of each ſand you have 3 and 4 fathoms water. Between theſe ſands is a good channel to ſail or work through in the day-time, but exceſſively dangerous in the night, for you cannot depend on your ſoundings; therefore in the night it is adviſable to go to the weſtward of Goolwaller; the channel between the ſands is from 2 to $2\frac{1}{2}$ miles broad, and the ſoundings from 5 to 9 fathoms.

"From Baroche, or Broche, to *Iumbaſeer* keep within 3 miles of the ſhore, in 7 or 8 fathoms, low water; and in working do not ſtand at any time above 2 leagues off, from 8 to 10 fathoms, becauſe the tide is ſo rapid, that in caſe it falling little wind, you would meet with great difficulty to get inſhore again: from the ſhore a flat runs off $1\frac{1}{2}$ and 2 miles, dry at low water, ſpring tides, which continues from Iumbaſeer to *Dagon*; to the northward of Iumbaſeer in ſome places it runs 4 or 5 miles from the ſhore; cloſe to it from 4 to 7 fathoms water.

"IUMBASEER Road, which lies in the latitude 21° 49′ North, is known by a pagoda on the

the north ſide of the entrance of the river called Diu; the marks for anchoring are, the aforeſaid pagoda N. E. by E. ½ E. and Iumbaſeer point E. by N. in 7 fathoms, low water, the dry part of the flat 1¼ mile diſtance; and from the Pagoda 4 or 5 miles with the aforeſaid bearings, you will have very little tide, and lie with great ſafety, the north part of the flat breaking the ſtrength of the tide. High water on full and change 48 minutes paſt 4 o'clock, ebbs and flows 6 fathoms; this is a great place of trade for cotton, grain, and oil.

" The diſtance from Iumbaſeer to GONGWAY is 6 leagues, with a channel 1¾ mile broad, but very dangerous, the tide running with an amazing velocity: ſoundings from 7 to 2 fathoms, firſt quarter flood. In going keep within a quarter of a mile of the flat in 2, 3, and 4 fathoms, until you have brought a ſmall cluſter of trees Eaſt; then haul in for the ſhore, keeping within 200 yards of it up to Gongway Road; and when abreaſt of the town, you may ſafely anchor about 80 yards from high water mark, where you will ground at firſt quarter ebb. It is dry over the bay from the latitude 22° 3′ North to Cambay, at low water, ſpring tides. No veſſel attempts to go above Gonway in a tide from Iumbaſeer, as it is attended with bad conſequences; for if they cannot get into Cambay creek, they muſt return to Gongway. High water at Gongway, quarter paſt 5 o'clock, on full and change.

" It is 5 leagues from Gongway to CAMBAY, which lies in the latitude of 22° 24′ North; at firſt quarter flood they always weigh and ſtand over, keeping the pagoda (at Cambay) bearing N. by E. ¼ E. and in working from N. by W. to N. E. by N. the ſoundings are from 2 to 4 fathoms; you muſt keep the ſhore cloſe aboard until you are to the northward of *Dagom*, meeting with great overfalls, and the tide running ſo rapidly, that if the veſſel ſhould take the ground, ſhe muſt overſet immediately, and in all probability every ſoul on board periſh, which often happens through the neglect or obſtinacy of the pilots. *N. B.* The tide ſets N. E. and S. W.

" From Surat to Gogo, keep (as mentioned in the remarks from Surat) to the northward until you get clear of Goolwaller ſand to the weſtward; then ſteer over for the Iſland of PERAM, keeping to the eaſtward of it about 1½ mile, in 14 and 15 fathoms water, as it is very dangerous, and environed with rocks and ſhoals: when it bears S. W. ſteer N. N. W. your ſoundings are from 11 to 9 fathoms, until you get the following bearings on, viz. the body Peram S. by E. ¼ E. Kourak Point S. S. W. Gogo ditto W. N. W. then haul up for the body of Gogo town, which will carry you clear of *Gogo Sand*; ſoundings from 10 to 3 fathoms. When the following bearings are on, you may anchor with great ſafety, *viz.* Gogo point W. by S. Kourak S. by E. ¼ E. houſe on Peram S. S. E. ¼ E. diſtance from ſhore ½ a mile, in 3 fathoms, low water; the town lies in 21° 44′ north latitude, and its road-ſtead is a ſafe place in the S. W. Monſoon, where you may run to in caſe you happen to part from your anchors in Surat Roads, it being an entire bed of mud for ¾ of a mile from the ſhore, and always ſmooth water. Ships here get ſupplied with ſtores and proviſions, and repair any damages they may have ſuſtained: the natives, who are principally Moors, build veſſels from 50 to 300 tuns burden."

DIRECTIONS

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## DIRECTIONS FOR VESSELS TO MAKE THEIR PASSAGE TO BOMBAY, IN THE MONTHS OF MAY AND JUNE, FROM SURAT BAR,

By Mr. SKINNER.

"IN caſe veſſels are drove from their anchors, which frequently happens in thoſe months, through the violence of the S. W. Monſoon, and a heavy ſwell ſetting in upon the flood; they ſhould either make for Gogo as before directed, or ſtand over for the *Sultanpore* ſhore as ſoon as clear of the ſouth-weſt part of Goolwaller ſand, which may be gained (from Surat roads) by the laſt quarter flood (to run up) and half ebb, and then they work down along ſhore to Diu Head by the aſſiſtance of the tides; the ſhore is bold from *Groapnought Point*, till within 5 miles of the eaſt part of Diu Iſland, when an offing of 4 or 5 miles muſt be given, there being a reef of rocks running to the S. E. 2 miles. When the veſſel gets as low as Diu Head, ſhe muſt ſtand off with an ebb tide, which will carry her clear of every thing, and fetch Bombay without making the land before you have entered its latitude; this ſhould be attended to, for the tides upon the neaps have not ſufficient ſtrength to contend with the great weſtern ſwell that ſets upon the ſhore at the above ſeaſon of the year, between Baſſeen and Bombay, and which renders it difficult for heavy ſhips to get an offing. I have known veſſels to have been ſeveral days in getting an offing, of 4 or 5 leagues; and have myſelf, in going to Surat, not got 4 leagues off, when abreaſt of St. John's, and with much trouble, not without danger, cleared the rocks which ſurround that cape. For Baroche bar and river, bring Baroche point N. by E. Peram W. $\frac{1}{4}$ N. the entrance of the river E. N. E. and ſteer for it. Baroche Point, when N. by W. $\frac{3}{4}$ W. haul up N. E. by E. ſoundings from 6 to $2\frac{1}{2}$ fathoms at $\frac{3}{4}$ flood, ſpring tides. When the aforeſaid Point is N. W. weſterly, ſteer N. E. by N. from 5 to 3 fathoms, till you have the north ſhore aboard, and then keep along it at 20 yards diſtance (this is the place where the northern Galliots lie for the merchant boats, and is juſt within the Bar); having got Coleycat North, ſteer E. by S. and when you bring it N. W. ſteer S. E. from 3 to 8 fathoms; as ſoon as the two Brab-trees on the Baroche ſhore bear N. N. E. haul up for them till you are within 10 yards of the ſhore, from 5 to 9 fathoms, which you muſt keep cloſe aboard; when two pagodas on the north ſhore bear N. by E. keep out S. by W. into mid-channel, to avoid a ſhoal that runs one third over the river from the Baroche ſhore (upon it at high water, 1 fathom), ſoundings from 4 to 2 fathoms; Barbouche when N. E. by E. ſteer for it from 3 to 9 fathoms; when abreaſt of the town you will have 6 fathoms at low water, where a veſſel of any burthen may lie with ſafety. From the aforeſaid town to Baroche the banks are from 12 to 20 feet high, which you muſt keep cloſe aboard, there being little water upon the ſouthern ſhore; but off Baroche, a veſſel may anchor within 30 yards of it, and will have 4 fathoms at low water. *N. B.* The tide's ebbs and flows at ſpring tides upon the bar $2\frac{1}{2}$ and 3 fathoms."

DESCRIPTION

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# DESCRIPTION OF THE COAST OF GUZURAT,

## FROM GROAPNAUGHT POINT TO DIU POINT, &c.

FROM GROAPNAUGHT Point, the weſternmoſt at the entrance of the Gulf of Cambay, to MOWAH Point and Bay is 20 miles, the coaſt very clear one mile from the ſhore; the riding is bad in that bay, the bottom being all ſandy from 7 to 10 fathoms, and with a flood tide you lie, with a dangerous reef of rocks, quite a ſtern.

From Mowah Point to SEARBETT ISLAND the coaſt runs 16 miles in a ſtraight line; this is the only iſland on this coaſt except Diu; it has about 200 inhabitants and very good water. Veſſels are ſheltered there againſt both winds, and they might ride out the S. W. Monſoon by keeping well to the eaſtward, ſo that the iſland ſhould nearly ſhut in the opening of the weſt channel: round the weſt end of this iſland is the only way in for a large veſſel; at the eaſt end it is all ſhoal water; but there is an excellent anchoring place from 4 to 10 fathoms, ſoft ground, under the north ſide of the rock, where you are ſheltered from the weſterly winds. This iſland is the receptacle of all the pirates on the coaſt, whom it ſupplies with grain and water.

JAFFRABAD, or Jaffierabad, is about 6 miles to the weſtward of Searbett Iſland, and has the beſt river of any on this coaſt, on account of its eaſy entrance; though it is ſhallow, veſſels will receive no damage by lying in the ſoft mud at low water, as they are ſo well ſheltered from all the winds; next to Diu this is the greateſt place for trade on the coaſt of Guzurat.

From Jaffrabad to RADJAPOUR the diſtance is 13 miles; and 9 or 10 miles farther you come to DIU ISLAND, which belongs to the Portugueſe. It is about 6¼ miles from Eaſt to Weſt, and 1¼ from North to South: its town is defended by a caſtle well fortified: the inhabitants are obliged to drink rain water, and though the iſland is unfit for cultivation, they are plentifully ſupplied from the main with proviſions of all kinds. The water is ſo deep on the eaſt ſide of the caſtle that a 74 gun ſhip might lie within 5 or 600 yards of the wall; ſo that ſhe does not come too near a rock above water which joins with a line of rocks from the caſtle.

From the rock above water there is a bank to the eaſtward with breakers upon it at low water, but between is a good channel of 4 or 5 fathoms. Within this bank and rock you have the beſt anchoring ground from 5 to 3 fathoms.

The channel between the iſland and the main is only navigable at half tide for fiſhing boats; the weſtern entrance having but 4 or 5 feet at low water on the bar; this entrance is defended by a ſquare fort. To the weſtward of this channel, there is an excellent harbour againſt the weſterly winds, with good ſoundings. DIU POINT, or *Diu Head*, forms the weſt ſide of this bay, and is the ſouthern extremity of the coaſt, lying in 20° 41′ 42″ latitude North; the land to the weſtward is low to the water ſide, but hilly in the country; the ſoundings are regular inſhore, with a hard bottom. This coaſt of Guzurat we have been deſcribing, is bold, barren, and inhoſpitable; the ſoundings give you little or



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no warning of the diſtance from the ſhore; trees and the appearance of cultivation are very rare, and it is deſtitute of a good harbour where a ſhip might anchor with ſafety during a gale of wind.

From Diu Point the coaſt ſtretches to the N. W. about 46 leagues, as far as Gigat Point, where the Gulf of Cutch begins; this ſhore is of a moderate height, but mountainous in the country, and you have ſoundings, 36 fathoms, ſand and ſhells, 7 or 8 leagues in the offing.

Twenty leagues S. by W. from Diu Point there is a *Bank of breakers* in about 19° 50' latitude North, and about 3° Weſt from Bombay, which was diſcovered in the *Mary*, 6th March 1733.

## THE MONSOONS, &c. ON THE WESTERN COAST, OR MALABAR SIDE OF INDIA.

AFTER the full or change of the Moon, the latter end of October, or early in November, the fair weather ſets in, and puts an end to the S. W. Monſoon, which is the bad and rainy ſeaſon: it generally breaks up with thunder and lightning; and a ſtorm comes in the ſouth-eaſt quarter, blowing violently for ſeveral hours with abundance of rain, then veers round the compaſs and moderates.

After the N. E. Monſoon, or fair weather, ſets in, you may ſail up and down this coaſt with great ſafety; the winds are from N. W. to N. E. not only without ſtorms, but without ſqualls, or any uncertain weather; ſo that you can carry all your ſails night or day, without apprehenſion. This weather, which is often unſettled in November, continues during December, January, February, and March, therefore they are the beſt ſeaſon for navigating along the coaſt.

Every day about 12 o'clock, the wind comes from the ſea, and is called ſea-breeze; it moſtly blows from W. S. W. or Weſt a pleaſant gale, and veers round towards the evening to the northward.

Towards 6, 8, or 10 in the evening, ſooner or later, the wind comes off the land, now and then after a ſhort interval of a calm between the breezes. The land-winds are between N. E. and E. S. E. and ſometimes but faint at their beginning, but they ſoon increaſe to a fine freſh gale, which continues till 9 or 10 A. M. next day; then they turn to light airs, or calm, till the ſea-breezes ſet in. Obſerve that theſe land-winds begin to be faint and uncertain after the middle of February.

To make moſt of theſe alternate breezes, you are during the land-winds to get a good offing, at leaſt into 30 fathoms, that you ſhould take advantage of the ſea-breeze: in that depth you will be ſoon 5 or 6 leagues off ſhore; but take care to be within 2 or 3 miles of the coaſt by 7 or 8 o'clock in the evening, before the land-wind comes off. You may in moſt places ſtand inſhore to 8, 10, or 12 fathoms; and if you find yourſelf near the land before the wind blows from it, you may either anchor or make a ſmall trip, as there is no current at this ſeaſon.

But

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But if you ſhould experience a current, great regard muſt be had to it, during a calm, between the change of breezes, or you may loſe the advantage you have gained: in that caſe, ſhould the current be againſt you, anchor with your ſmall or coaſting anchor, and wait for the breeze either from the land or the ſea.

In March and April the ſea-breezes are ſtronger than in the four laſt months, and the land-winds are very faint, ſeldom coming off till morning: the ſea-wind, or rather the N. W. wind, continues till then; land-breezes are from N. E. to E. by N. and continue ſo ſhort that little advantage is got by them; as you are obliged to ſtand right off ſhore to get an offing, in order to make moſt of the ſea-breeze; this generally comes on to the northward of Weſt, ſoon veers round to N. W. and frequently light airs and calms. And it often happens that the ſea-wind, with which you ſometimes lie a tolerable ſlant along-ſhore, will induce you to ſtand on longer than intended; by which means you get cloſe inſhore, in hope of a ſpirt of land-wind to run off again, when you may find yourſelf deceived; indeed it may be ſaid that during theſe months there are little or no land-winds. On the full and change, it blows very ſtrong at N. W. with a large ſea, and ſtrong ſoutherly current; therefore thoſe who are determined to ſail up this coaſt in the months of March and April, which is very tedious, ought to keep a very good offing: when they ſtand inſhore in the evening with a ſea-breeze (as the wind generally northerns in the evenings), inſtead of anchoring to wait for a land-breeze, they ought to ſtand off again into 30, 35, or 40 fathoms, and there anchor, to be ready for the next day's ſea-breeze; and as the winds abate about midnight, and continue fainting away till 10, 11, or 12 o'clock the next day, when the ſea-breeze comes on again, be ſure always to anchor when it is little wind, on account of the ſoutherly current, accompanied generally with a ſwell from the N. W.; by this method only you will gain ground, and keep what you have got.

In May the weather is very uncertain, the winds are variable, and the ſky frequently very cloudy, which terminates in a ſlight ſhower of rain, with much lightning to the ſouth-eaſtward. The wind during this month blows frequently from the South and S. W. and ſometimes very ſtrong, eſpecially down the coaſt, to the ſouthward of Tellicherry, where the Monſoon always ſets in before it goes farther to the northward. It alſo ſets in to the northward at Surat, and on that coaſt ſooner than at Bombay: notwithſtanding the uncertainty of the weather in May, the wind is moſtly in the N. W. quarter, whence it frequently blows pretty freſh; then the weather is generally clear and fair. But when the wind is S. E. or South, or ſouth weſterly, which often happens, the ſky is always overcaſt, &c. as if a tempeſt was coming on. Towards the latter end of this month, or early in June, if it happens to be the time of full, or change of the Moon, it will bring in the S. W. Monſoon and rainy weather, which generally commences with heavy clouds, loading the ſky and threatening a ſtorm. And indeed it comes on moſtly in a violent ſtorm from the S. E. with much thunder and lightning, a deluge of rain continual for ſeveral days, and a prodigious great ſea conſtantly rolling upon the ſhore. During this



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month the weather is ſultry hot, and almoſt intolerable, though not in an equal degree every year.

As the S. W. MONSOON ſets in with ſtrong gales from the S. E. the wind veers round to the South and ſouth-weſtward, and indeed during this Monſoon it blows moſtly between the S. W. and Weſt.

In the months of June and July the weather is ſo bad upon this coaſt, that the navigation is in ſome degree impracticable, owing to almoſt one continued tempeſt of wind and rain, with a great ſea from the S. W. Though there are ſome intervals, when the rain ceaſes, as the winds moderate a little, and the Sun is ſeen, but they are generally of a very ſhort duration, as well as their ſucceſſive periods.

In Auguſt the Monſoon being more ſettled, and the winds more moderate, with longer intervals of fair weather, the ſhips who have wintered at Bombay depart thence for the coaſt of Coromandel, and other parts to the eaſtward, although in this month there is much rain, with many hard ſqualls, and frequent ſtorms are much to be feared. The winds blow moſtly from S. W. to Weſt, but ſometimes extend to W. by N. and W. N. W.

In September the weather is ſtill fairer than in Auguſt: and you have often fair weather for ſeveral days together; but yet you are not free from the apprehenſion of ſtorms, the ſky being often overcaſt, and the horizon obſcured with a thick haze. Sometimes you meet with heavy ſqualls, and much rain, with a large ſwell from the S. W. continually rolling in upon the ſhore, which, in 9 or 10 fathoms, looks as if it was going to break; in ſome years you have heavy ſtorms during this month. The winds are much the ſame as in Auguſt, from S. W. to Weſt, and W. N. W.

In October the weather is like that in September, till the full and change of the Moon, when it becomes very precarious, the Monſoon generally changing the latter end of this month, or early in November, as the full or change happens. It always breaks up in a violent tempeſt of wind in the ſouth-eaſt quarter, with a deluge of rain, and much thunder and lightning. It is not to be underſtood, however, that the Monſoon changes preciſely on the full or change of the Moon; it will happen perhaps 2, 3, 4, or 5 days before or after. After the Monſoon is changed, you have the fineſt weather, and temperature, with gentle gales and a ſmooth ſea.

GENERAL

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# GENERAL DESCRIPTION OF THE WESTERN COAST, OR MALABAR SIDE OF INDIA, FROM BOMBAY TO CAPE COMORIN.

## I. THE COAST OF CONCAN.

THIS coaſt extends from Baſſeen to Cape Ramas below Goa; but we begin at Tull Point, from which to CHOUL, that lies in 18° 37′ latitude North, and is remarkable by its high land, they reckon 5 leagues. Two leagues off Tull Point are the ſmall iſlands of *Kennery*, and *Hennery*, and about 2 northward of Choul, is that of *Coolaba*; theſe three iſlands belong to the Maratta pirates. The fort of Choul is ſituated on a little eminence which may be ſeen 4 leagues off at ſea, at the foot of which the town is built. They anchor right off in 8 or 9 fathoms water; ſailing along the coaſt you perceive ſeveral buildings, and within land many rugged mountains.

From Choul to RAJAPOUR, or *Dunda Rajapour*, belonging to the Siddee, the coaſt is clear of all danger, from 4 to 5 fathoms, within a mile of the ſhore; there are ſeveral ſmall bays between theſe ports, but none of them deep enough to afford any ſhelter againſt a N. N. W. or S. W. wind. When you turn it along this coaſt, in ſtanding on, come no nearer than 8 or 9 fathoms, becauſe under that depth you may find danger in ſeveral places. At the entrance of Rajapour River lies the fortified Iſland of Gingerah.

From Rajapour Point to COMRAH BAY the coaſt lies nearly North and South, and above 5 fathoms has a clear bottom. The bay is very wide; there is good ſhelter againſt a N. W. wind, and veſſels may ride very ſafe, in 4 or 5 fathoms, within 500 yards of the ſhore; but its ſouth end has not ſo convenient a bight for ſhelter againſt the ſoutherly winds.

There is no danger from this Bay to Bancoot above 5 fathoms: to the northward of Bancoot is a ſmall Bay called *Severndon*.

BANCOOT RIVER, which cannot be entered without a pilot, lies in 17° 17′ latitude North, and upon the ſouth ſide of the entrance of this river ſtands the Engliſh fort called *Victoria*. The land about Bancoot may be eaſily known from the offing at a great diſtance; the interior part forms a flat of conſiderable length; but at the diſtance of 6, 7, or 8 leagues, *Harriſſa* at the entrance is very conſpicuous, being a round hill when to the ſouthward of it, and it appears a ſhade darker than the other land. A league and a half to the ſouthward of the fort is the village of Kelſey, with two remarkable Brab-trees, which make the mark for Bancoot Bar.

From Bancoot River to Severndroog the coaſt is all clear above 5 fathoms; under that depth there are a few patches of hard ground, juſt to the ſouthward of Bancoot Bar, having 3 fathoms upon them.

SEVERNDROOG FORT ſtands upon an iſland 4 leagues from Bancoot, and chained to the ſhor

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ſhore by a line of rocks, which forms a little ſnug bay for veſſels to lie under the South of it. On the coaſt oppoſite to Severndroog Iſland is the town of DABUL.

From this bay to ANGENWEEL RIVER and Fort, it is about 4½ leagues; and 6 leagues further South, lies the Fort of ZYGHUR at the bottom of *Boria Bay*. The land hereabout ſhews in a number of bluff points, eſpecially Boria* Point, which is ſteep to: the bay is near 2 miles deep and 6 wide, clear of all danger, except cloſe in, oppoſite to the fort, where there are a reef of rocks extending about ½ a mile from the ſhore. The bar of the river has 2½ fathoms on it at low water.

Between Zyghur and Rattney Garie to the ſouthward, at 14 miles diſtance, you have regular ſoundings from 9 to 7 fathoms, all along and within a mile of the ſhore. RATTNEY GARIE is a neck of land fortified all over, and at ſome diſtance from the land appearing like 2 ſeparate iſlands. To the northward of it there is a cape which makes like an iſland, coming from the North or the South; even from the Weſt it ſhews different in colour from the other land, being much lighter. Behind this cape, to the northward, is an excellent bay and ſhelter from ſoutherly winds; and between it and Rattney Garie another bay about 1½ mile broad, and 2 miles deep, which 5 and 6 fathoms water, ſandy bottom. Eight miles to the ſouthward is a ſmall bay, between which and Rattney Garie ſtands a remarkable banyan-tree on the brow of one of the hills near the ſea.

FORT RADJAPOUR, to the ſouthward of this ſmall bay, lies in 16° 45′ latitude North; it ſtands upon a barren hill, at the north ſide of a river which trends to north-eaſtward, and on the ſouth ſide you perceive a remarkable white pagoda: the hills on the South of the river are very woody.

GHERIAH, or *Gariab*, lies 5 leagues due South from Radjapour: the coaſt between is pretty high and clear of danger; you may coaſt it along from 14 to 16 and 17 fathoms, from 4 to 6 miles off ſhore. You have from 20 to 25 fathoms, with an offing of 4 or 5 leagues; and from 25 to 30 and 35 fathoms at 6, 7 and 8 leagues off the coaſt, muddy ground. The latitude of Gheriah town and fort is 16° 32′: when the flag ſtaff, which is very high, and may be ſeen a great way off, bears E. by S. 2 or 3 miles, you have 11 or 12 fathoms; E. ½ S. 6 or 7 miles 15½ or 16 fathoms; from E. by N. to E. by S. 3½ leagues, 20 fathoms; and with the ſame bearings 6 or 7 leagues, from 30 to 33 fathoms, oozy ground†.

* It lies in about 17° 24′ latitude North: this muſt be the headland called *Cape Dobbs* in the Charts.

Lieutenant *M'Cluer* has taken no notice of Cape Z, or ZBYD, between Severndroog and Angenweel. It is deſcribed as follows in the *New Directory's* Remarks, p. 108. "From Cape Dobbs the coaſt lies N. N. W. 5 leagues, to Cape Z in latitude 17° 37′ North, the Variation, 1762, was 44 min. Weſt. This is a high, ſteep, red head-land, lying out a ſmall diſtance into the ſea. It appears very white when the Sun ſhines on it, which, with its being high and ſteep, makes it very remarkable. Between theſe capes the coaſt is high and bold to; and there are ſeveral openings, like the entrance into the rivers or harbours; and when near the ſhore, you may ſee ſeveral Indian fortifications, which I can give no particular deſcription of; but am well aſſured that the coaſt is clear of all danger. I (Mr. *Nicholſon*) have coaſted it ſeveral times inſhore. You may ſtand in to 8 or 9 fathoms with ſafety, 1½ or 2 miles off ſhore; and you may coaſt it along in 11, 12, or 13 fathoms from 2 to 3 leagues off ſhore. You have from 17 to 20 fathoms, 4 or 5 leagues off; and 25 to 30 fathoms, 6 or 7 leagues off ſhore; ſand, mud, and ooze."

† ANGRIA's BANK lies oppoſite to this part of the coaſt, at about 22 leagues diſtance. "Having ſet Gariah Flag-ſtaff, and the adjacent points," ſays Lieutenant *M'Cluer*, "ſtood off the land with a determination to traverſe Angria's Bank.

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From Gheriah to Dewghur, in 16° 23′ latitude North, the diſtance is 10 or 11 miles S. by E. eaſterly; the coaſt ſteep to; 8 or 9 fathoms within ¼ a mile of it, and quite clear of danger. DEWGHUR FORT ſtands on a high hill, in an inland at the ſouthern entry. There is no apparent bar to this river, and, by keeping the ſouthern ſhore on board, you have regular ſoundings, 4 or 5 fathoms, into the back of the point, and within the fort there is appearance of an excellent harbour. From the north point of the river, a dangerous rocky reef runs off to the S. W. therefore coming from the northward, do not ſtand under 7 fathoms till the river is entirely open, then ſteer for the ſouthern point.

" The harbour of Dewghur," ſays Mr. *Archibald Blair*, " bears from the weſternmoſt Vingorla rocks nearly N. ¼ W. about 6 leagues: it is ſo eaſy of acceſs, I think it might be of ſervice, in caſe of ſhips falling to leeward in the S. W. Monſoon, ſo much as not to be able to weather the Vingorla rocks; they might, by going on the other tack, fetch this port, or keep it open till they have gained an offing: you anchor in 4 fathoms, 1¼ of a mile to the eaſtward of the fort."

About 21 miles S. by E. from Dewghur, ſtand the iſland and fort of MELUNDY, to the ſouthward of which are a number of rocks above water. Between theſe two places in latitude 16° 11′, is the entrance of *Atchera* river, whoſe land on the north ſide, which is the higheſt, may be known by a remarkable white pagoda; this river is navigable only for ſmall veſſels. Melundy, called alſo *Malwan*, is inhabited by pirates, who will plunder any ſhip that is defenceleſs; it cannot be perceived at any great diſtance from the coaſt; and the iſland can only be diſtinguiſhed coming from the northward or ſouthward. About 3 miles to the North of it there is a ſmall rocky iſland, lying about a mile from the main, which affords no ſhelter for anchorage, being chained to the coaſt by rocky irregular ground. From this iſland northward, is a ſtrait ſandy beach, clear of danger into 5 fathoms, which depth is one mile off.

NEWTEE FORT, which lies 7 or 8 miles to the ſouthward of Melundy, is what is taken by moſt people for Vingorla. It ſtands on a point of land, projecting to the South, in 15° 56′ north latitude, and to the S. W. of it is the ſouth range of the *Barren* or *Burnt Iſlands*, by Engliſh navigators commonly called VINGORLA ROCKS. Theſe have a good channel between them and the point, with a good road for veſſels working up the coaſt: the ſouthern range of the Vingorla Rocks appears to be chained by a reef; there are about 20 in ſight, ſeveral of which are juſt a-waſh at high water; they lie nearly in a direction North and South, and may be ſeen about 5 leagues from a ſhip's deck. I have paſſed, ſays Mr.

From the latitude 16° 40′ North, ſtood off nearly a W. ¼ S. courſe, and ſounded regularly every hour, till ſoundings were loſt, which is 66 miles from the land: fell in with Angria's Bank, firſt caſt 13 fathoms, ſtood acroſs due Weſt, and found its breadth here to be about 10 miles. We croſſed it in latitude 16° 30′ North, and endeavoured to traverſe to the north end of it, but the winds and irregularities of the currents kept us three days in the ſame latitude. We found the Bank did not exceed 16° 38′ North by croſſing the head of it in that latitude." Upon this deſcription Mr. *Dalrymple* has made the following obſervation: " Some manuſcript ſoundings deſcribe a Bank from 12¼ fathoms in latitude 16° 27′ North, to 17½ in latitude 16° 51′ North, which do not correſpond with Lieutenant *M'Cluer's* deſcription of Angria's Bank: Commodore *Watſon's Directory* had alſo, in manuſcript, a large Bank, called the *Gariah Bank*, extending from 16° North, to 17° 30′ North, which was deſcribed to have on ſome places only 4 fathoms, and on ſome places 15 and 20, ſand and coral rocks. This includes the *Elizabeth Bank*."

*Nichelſon*,

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*Nichelſon*, within 2 or 3 miles of theſe rocks in 17½ fathoms, and when they bore Eaſt 5 or 6 miles, I have had 18 fathoms, by which I imagine they are ſteep to. You have 30 to 35 fathoms, oozy ground, 5 leagues off, when they can but juſt be ſeen from the poop of a large ſhip. It is adviſable, when paſſing theſe rocks in the night or hazy weather, not to go under 20 fathoms, which will carry you 2½ or 3 leagues without them. In the road to the ſouthward of Vingorla Rocks, a ſhip may anchor in 12, 13, and 14 fathoms, clear muddy ground, by bringing the outermoſt rock to W. N. W. or W. by N. and the extremes of the land to the ſouthward, to bear S. E. The adjacent coaſt, like that of Melundy, is inhabited by pirates, and ſhips of ſmall force muſt avoid coming near this place.

From Newtee Point to RAREE, the coaſt runs S. S. E. nearly about 15 miles; it is a regular ſandy beach, and good ſoundings all the way, within a mile of it. Raree is a well built fort on an eminence, and very conſpicuous from the ſea. To the weſtward of this fort is a long rocky point with many rocks above water; two in particular lie to the S. W. of it, above a mile from the ſhore: theſe rocks are in the line of 7 fathoms, and it is here neceſſary not to come under 10 in the night. To the northward of this place is a ſmall river navigable for boats.

From Raree to the Bluff Point of the Agoada, at the entrance of Goa, they reckon 15 miles in a ſouth direction. Along this coaſt are the two forts of *Chiracole* and *Chapra*; the firſt ſtanding off the brow of a hill does not ſhew itſelf at any diſtance in the offing; the other is better ſeen, being ſituated on a high bluff point, to the northward of which is a ſmall river, and the land about it being hilly to ſeaward: both belong to the Portugueſe, who ſeldom ſhew any colours at theſe forts.

## DESCRIPTION OF THE LAND OF GOA,

### BY THE HONOURABLE THOMAS HOWE.

### DIRECTIONS FOR THE BAR AND HARBOUR OF GOA, AND FOR MURMUGAON.

GOA is the capital of the Portugueſe ſettlements in India, and the reſidence of the Viceroy; this place is too well known to require a farther deſcription, which beſides would be nowiſe conducive to the object we have in view.

"The ſhore (of Goa) from the *Bluff Point of the Agoada*, to 2 or 3 miles northward is ſandy; on the top of Agoada Point is a fort of brown ſtone, with a Light-houſe in the center, at which, however, no light is ſhewn, except when any Portugueſe ſhips are expected from Europe*. The point of *Noſſa Senhora do Çabo*, Our Lady of the Cape, about 3 miles to the eaſtward of Agoada, is bluff, and appears covered with trees ſurrounding a large white building, viſible at a conſiderable diſtance, which is the convent from whence the point takes

* Mr. *Nichelſon* ſays that the light is kept during the S. W. Monſoon.

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its name. The foot of the point is incloſed on the weſt ſide by an old fortification of brown ſtone; off the point lie ſome rocks moſtly above water."

"MURMUGAON POINT, about 7 miles to the ſouthward of the Agoada, is a long level land, nearly of the ſame height as that of the Agoada, and Noſſa Senhora do Cabo: on the north-weſt part of it are ſome fortifications, to the weſtward of which appears to be a good road; we ſaw two large Portugueſe ſhips lying there.

"The north-eaſtmoſt and Middle Iſlands of *St. George* are level, and not high; the South-weſternmoſt riſes to a point like a ſugar-loaf, the ſummit of which is rather higher than the other two iſlands. Part of the Gatta mountains (the Gauts) lying behind all this land of Goa, hinders it from being diſtinguiſhed at a great diſtance.

"The anchoring place in GOA ROAD is in 4½ fathoms, at low water of ſpring tides, about ½ a mile to the ſouthward of the Agoada Fort, which ſtands at the foot of the ſouth-eaſtmoſt part of the Agoada Point; the ground is deep mud. There are ſome rocks round the foot of the Agoada Point, but moſtly above water.

"The watering places are at the pier of the Agoada Fort, and at a convent cloſe round Caſtle Point, which is up to Goa inlet, about 3 miles from the Agoada Fort, on the north ſide.

"The latitude of the Agoada Fort, by two obſervations with my ſea-quadrant, concludes the Honourable Thomas Howe, is 15° 28′ 20″ North."

"From the Agoada anchoring ground," ſays Lieutenant *M'Cluer*, "we ſtood round the Monaſtery reef, and the wind being from the land, traverſed between the *Outer St. George's Iſland*, and the main, but had chiefly hard ground in that channel, and found it very unſafe for large ſhips, as there are ſeveral detached rocks from the outer iſland, one in particular juſt covered at high water. About ¼ of a mile to S. E. of the outer iſland is a channel between them, with 8 or 9 fathoms water: to the eaſtward of theſe iſlands is an excellent bight where ſhips may ride out a hard North-weſter: the bottom is clear and regular to within ¼ a mile of the ſhore."

If lying at the Agoada, adds a third navigator, you are bound into the river, get under weigh at half-flood, and ſtand to the ſouthward, till you bring a ſingle black buſh, that lies on the hill back of Pangim, in one with the Flag-ſtaff of the Black Fort, and ſteer away directly with thoſe marks in one, till you ſtrike the outer bar; you will have from 3½ to 4 fathoms, hard rock, and be entering between the breakers, at which time edge over to the north breakers, till you bring the high buſhes, on the ſouth part of Pangim back hill, directly over the Flag-ſtaff of the aforeſaid fort; and then run directly in with the ſame fort, till you bring the church at the back of the Fort dos Reyes, open with the Fort Point; which being done, you run cloſe along by the ſhore, till you come within a cable's length of the fiſhing ſtakes, and then haul over for the church before mentioned, getting cloſe over on that ſhore, and ſtanding along by it till you open the town of Rebenda, or Ribandar, with Pangim Point; at which time you muſt haul directly over for a croſs on the north ſhore of the entrance of the river; and when paſt the ſaid croſs, you may come on either ſide below Pangim.

*N. B.* There are three bars, going into Goa, all hard rock, about a cable's length or



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more diſtant from each other, between which you will have a fathom more water than on each bar, and ſoft mud; the inner bar is ſhoaler than the other about a foot, and there are, at high ſpring tides, 4 fathoms on the innermoſt.

The tide flows at Goa, on full and change days, at half paſt 4 o'clock, but always ſets out of the river; it ebbs and flows regularly about 6 feet perpendicular, by the ſhore. In the bay there is a kind of ſtill water, for the tide has no apparent motion while it is flowing, which is about 4 hours; and from the time of high water it ſets pretty ſtrong out of the bay for 7 or 8 hours.

In coming from the ſea to MURMUGAON, get midway between Murmugaon Point and the point of the White convent; and keep mid-channel, running up till you bring Murmugaon town entirely open with the fort, at which time you may haul over for the fort, in any depth of water you pleaſe, ſoft mud.

*N. B.* The danger going in is two rocks about midway, which always break; you may go between them, or on either ſide, as they are ſteep to.

CAPE RAMAS, the ſouthern extremity of the Portugueſe diſtricts, lies about 7½ leagues S. by E. from Murmugaon Point, the land between being low and woody near the ſea, and riſing into mountains at ſome diſtance from it. To ſeaward is a ſtrait regular ſandy beach, clear bottom, to within a mile of the ſhore. The cape is a high land, on the weſtern point of which ſtands a ſmall Portugueſe fort; this bluff is very ſteep to, and ¼ of a mile off, you round it in 9 fathoms, ſoft ground; here is good ſhelter from northerly winds, for ſhips working up the coaſt. The cape is very remarkable, forming, from the northward and ſouthward, in ſuch a manner that the falſe cape, which is the higheſt, is always ſeen before the true cape.

When from this cape you are bound into Goa, you muſt give a good birth to St. George's Iſlands (called alſo Serpent's Iſlands); there is a paſſage between them, with 4 fathoms water, nevertheleſs it is more prudent to ſail without all theſe iſlands; and in the night you ought to be upon your guard, becauſe of the currents, occaſioned by the ebbing and flowing of the river, which might alter the direction.

## II. THE COAST OF CANARA.

THIS coaſt extends from Cape Ramas to Declah, 8 or 9 leagues to the North of Mount Dilly.

From Cape Ramas to Carwar Bay the coaſt is curving, forming ſeveral bays, but not of any conſideration, as they will not afford ſhelter to ſhipping. CARWAR BAY is very little known; it is near 8 miles broad, and at the ſouth end of it are the *Ducky* or *Oyſter Rocks*, within which a ſhip may ride ſafe againſt a ſoutherly wind; on the ſouth part of the bay you find a cove where, it is ſaid, a man of war hove down in ancient times. Sudaſhgar, the fort of Carwar, is ſituated on a high point of land, and, being remarkably white, becomes very conſpicuous at ſea. When that fort and the Ducky rocks are in one E. N. E. ¼ E. diſtance from the land 3 leagues, from the rocks 7 or 8 miles, and Cape Ramas N. ½ W. you have

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16 and 17 fathoms; 3½ or 4 leagues off the ſhore the ſame depth is found, and at 5 and 7 leagues, you have from 25 to 30 fathoms: between theſe rocks and Cape Ramas the depth is 14, 15, and 16 fathoms, from 5 to 7 miles off ſhore.

ANJE DIVA iſland lies to the ſouthward of Carwar Head; it is about a mile in length, but not ſo broad, with a fortification towards the main, garriſoned with poor wretches who are tranſported from Goa; the paſſage between it and the main is clear, and no danger but what can be ſeen.

From Anje Diva to MERJEE RIVER the diſtance is about 16 miles S. by E. ½ E. You may ſee the entrance of this river between two bluff points, one to the northward, the other to the ſouthward, which is the higheſt, and defended by a redoubt, near which is a cluſter of fine green trees that makes it very remarkable: juſt within this ſouth point, on the ſide of the hill, ſtands a ſmall ſquare fort, which cannot be ſeen at a great diſtance, as it is built of brown ſtone. In the entrance of the river lies a large ſand bank, that always diſcovers itſelf, more or leſs, by the ſeas breaking on it. To go into the ſaid river you muſt keep near between the point, under the ſquare fort and the edge of the ſand-bank; and after you have paſſed the bank you may keep over to the north ſhore, and go up the river at pleaſure. It was, as well as all the coaſt between Cape Ramas and Mount Dilly, included in the poſſeſſions of the late Sultan Tippoo Sahib. Captain *William Brereton* who was there, and from whoſe deſcription the above detail is taken, obſerves that, at Anjengo, Cochin, Tellichery, and Onore, ſhips are obliged to have their water brought off in the country boats, which makes watering both expenſive and tedious; "I would therefore," ſays this gentleman, "recommend it to ſhips to call in at Merjee River, where we watered in April 1761. Upon the northern ſide of this river, on the hill, you may cut good and large fire wood; and rice may be bought in great quantities. Freſh water is to be had alſo in great plenty, extremely ſoft and good, and with the greateſt eaſe, as you do not go into the river; the watering place is in a very fine ſandy cove, juſt within the north point of the weſternmoſt part of the bay, where your own boats may land, and roll your caſk upon the ſand to a low ſtone wall, about 1 foot high, over which you may dip your buckets into the pool of freſh water, where a fleet of 20 ſails of the line may water in 2 or 3 days.

"The moſt convenient ſituation for a ſhip to anchor is near the northmoſt ſhore in 5 or 6 fathoms: the north bluff N. E. diſtant 1 mile; Fortified Iſland (near Onore), and the ſouthmoſt extreme of the land in one, S. by E. ½ E. the north extreme N. W. ½ W. we ſounded in the river from the ſhip, at half ebb, and had no leſs than 4½ fathoms, within half a cable's length from the point where the Moors fort ſtands, and at a cable's length from it, on the bar, we had 6½ fathoms: after we were over the bar, the water increaſed to 7 fathoms, which we carried all the way till we came oppoſite to the Choultry: ſo that if there was occaſion a ſhip might enter the river, but it would be neceſſary to ſend a boat firſt to ſound the bar. The ſhips took in from this place about 8000 robins of rice, each robin weighing 100 weight."

PIGEON ISLAND lies 9 leagues due South nearly, from the entrance of Merjee River, and about 4 leagues from the Continent. It is a ſmall, round iſland, which being very high, may



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be ſeen 9 or 10 leagues off in clear weather; a little iſlot or rock appears to the ſouth-eaſtward, and another to the eaſtward of it. About 9 or 10 miles to the Eaſt of Pigeon Iſland, lies another called HOG ISLAND, ſmaller and higher, with a peak much like the top of a ſugar-loaf; this lies near the main land, which hereabout is very mountainous, with ſeveral iſlots near it, but has gradual ſoundings towards them, of 8 and 9 fathoms: you may with ſafety go between Pigeon and Hog-Iſlands. "I have gone this paſſage ſeveral times," ſays Mr. *Nichelſon*, "when bound to Ananore (Onore): you have from 16 or 17 fathoms, mid-channel, to 11, 10 or 9 fathoms, on the continent ſide; when to the northward of Hog-Iſland you may coaſt it along to Ananore road in 8, 9 or 7 fathoms, 3 or 4 miles off ſhore, without danger.—In the ſtream of Pigeon Iſland, you find 20 and 21 fathoms. I have paſſed without this iſland ſeveral times, 3 or 4 miles off, when it bore from E. by S. to E. by N. and had 24, 24½, and 25 fathoms: in the night, or hazy weather, a ſhip ſhould not come nearer than this depth. You will have 30, 32, or 34 fathoms 3 or 4 leagues without it, when you are 6 or 7 leagues off ſhore, regular ſoundings, ſand and ooze."

ONORE, improperly called *Ananore*, lies upon the coaſt half way between Marjee River and Pigeon Iſland: you may anchor in the road on ſoft muddy ground from 5 to 6 fathoms, off ſhore 1½ or 2 miles; the flag-ſtaff bearing E. by N. or E. N. E. Fortified Iſland N. by W. and Pigeon Iſland S. by W. 3½ or 4 leagues. *Fortified Iſland* is a high green iſland, level at the top, about 1½ mile to the northward of Onore, and very near the continent; it is remarkable by its Indian fortifications. Onore is a conſiderable town, ſituated at the mouth of a ſalt river; it produces great quantities of rice and pepper; and formerly the Engliſh had there a factory.

From Onore to Mangalore the coaſt lies S. by E. and ſome degrees Eaſt, diſtance 31 leagues; it is very high all the way; but cloſe to the ſea, low and woody, with regular ſoundings towards the ſhore. About 14 leagues to the ſouthward of Onore you meet with the entrance of BARCELORE, at the back of which is a remarkable peak called *Barcelore Peak*; and 6 leagues to the South of this entrance lie St. MARY'S ROCKS; theſe are ſeveral little iſlots, ſome of which are as high as the hull of a ſmall veſſel, others low and flat; they lie 2½ leagues off the ſhore, and may be ſeen at 3 or 3½ from the ſhip's deck; you have 15½ or 16 fathoms without them. It is not adviſable to come nearer theſe rocks than 16 fathoms, and in the night, or hazy weather, than 17 or 18, in which depth you will paſs them at 4 or 5 miles diſtance; at 6, 7, or 8 miles you have 21, 22, and 23 fathoms water, and are then 5 or 6 leagues off ſhore.

The PERMEIRA ROCKS bear S. S. E. 4 or 5 leagues from St. Mary's Rocks, and lie 3 or 3½ from the coaſt; they are likewiſe as high as a ſmall ſhip's hull out of water, and may be ſeen from the deck at 4 leagues diſtance. You are not to come nearer them than 18 fathoms in the night, "I have ſounded well about theſe rocks," ſays the judicious Mr. *Nichelſon*, "and have paſſed them in 16¾, 16½, 16, and 15½ fathoms, at 2 or 3 miles diſtance without, and you will have no leſs water cloſe to them; the ſoundings are regular and even, ſand and ooze." Without theſe rocks you have 17 fathoms at 3 miles; 18½ at 4 miles; and 20 or 21 at 5 or 6 miles, being then 5 or 6 leagues off the coaſt.

MANGALORE

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MANGALORE is ſituated at the mouth of a river which has a bar, and is navigable only for ſmall veſſels; the anchorage in the road is oppoſite the river in 5, 6, or 7 fathoms, muddy ground.

From Mangalore to DECLAH, where the coaſt of Malabar begins, the ſhore runs to the S. by E. above 8 leagues, being low and woody, as well as clear of all danger. About 4 leagues to the N. E. of Declah there is a long, high, ſloping mount called *Barn-hill*, with ſeveral others farther inland. Mangalore bearing E. $\frac{1}{4}$ N. and Barn-hill E. S. E. off ſhore $4\frac{1}{2}$ and 5 leagues, your depth will be 21 or 22 fathoms; Barn-hill E. by S. $\frac{1}{2}$ S. with Mangalore Eaſt, and an offing of 6 leagues, you will have 30 fathoms, ſand and ooze.

## III. THE COAST OF MALABAR.

THIS coaſt, as we have obſerved, begins at Declah and ends at Cape Comorin.—From Declah to Mount Dilly they reckon about 8 leagues N. by W. $\frac{1}{2}$ W. The coaſt being low, woody, and clear of all danger. About 5 leagues to the northward of Mount Dilly is *Mount Formoſo*, ſo called by the Portugueſe from its beautiful appearance; and 6 leagues to the northward of it is ſeen *Barn-hill*; you may ſtand inſhore on 7 or 8 fathoms with ſafety, and coaſt it in 9 or 10 fathoms, at 5 or 6 miles diſtance.

MOUNT DILLY or *Mount Dilla*, in lat. 12° 2′, is a high mountain lying E. N. E. and W. S. W. forming a point of land which projects into the ſea, and may be ſeen 9 or 10 leagues off in a clear day. As you come from the northward, or ſouthward, it appears detached from the coaſt; and the ſurrounding land being very low, and only diſtinguiſhable by trees, renders this mount and its point very remarkable to navigators.

From Mount Dilly to TELLICHERY, the principal Engliſh ſettlement on the Malabar Coaſt, the courſe is S. E. $\frac{1}{2}$ S. diſtance about $7\frac{1}{2}$ leagues; with a low and woody ſhore, and high mountains within the land; you may coaſt it in a depth from 10 to 15 fathoms, at a diſtance from 4 to 6 miles. But off the mount in 14 or 15 fathoms, your diſtance will be only 3 or 4 miles. The ſoundings are very regular. In the offing between Tellichery and Mount Dilly, you have between 20 and 26 fathoms, oozy ground, from 4 to 5 leagues, and between 25 and 35 fathoms, from 5 to 7 leagues off ſhore. When Mount Dilly bears from E. by N. to S. E. by E. diſtant 6 or 7 leagues, you have 31, 32, and 33 fathoms, ſandy ground. Obſerve alſo that the coaſt from the Mount to Tellichery is clear of all danger in 5 fathoms, near the ſhore, and that a ſhip may range it along in that depth without fear.

You may anchor at Tellichery in $5\frac{1}{2}$, or 6 fathoms, the Flag-ſtaff bearing N. E. by N. Green Iſland, which is pretty high, and covered with trees, N. by W. $\frac{3}{4}$ W. off ſhore $1\frac{1}{2}$ or $1\frac{3}{4}$ mile. There are ſeveral great rocks to the northward of the town, but no danger, as they lie cloſe to the ſhore. Here may be had good freſh water, and other refreſhments.

About 10 miles to the northward of Tellichery, lies the Dutch factory of *Cananore*, and 6 miles to the ſouthward of the former place, the French factory of MAHE′, near the mouth of

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of a ſmall river navigable only for country veſſels. The beſt anchoring in Mahé Road, in fine weather, is in 5 or 6 fathoms, the Flag-ſtaff E. by N. or E. by N. $\frac{1}{4}$ N. $1\frac{1}{2}$ or 2 miles off ſhore.

They reckon about 12 leagues S. E. by S. nearly, from Tellichery to Calicut Road; the coaſt is low and very woody, with ſeveral ſmall rivers and villages: between theſe two places lies the SACRIFICE ROCK, called by the natives *Cugnali Iſland*. This rock ſtands about 6 miles from the ſhore, and Cotta Point is bearing from it South 77° E. it bears from Tellichery Flag-ſtaff about South 6° E. It is as high as a large ſhip's hull out of the water, ſteep to on all ſides, and very white, being covered all over with birds dung. It was on the reefs near POINT COTTA that the *Prudence* and *Union* ordnance ſtore ſhips ſtruck, and were both wrecked the 20th May 1782. Driven out of Calicut Road in a ſtorm of wind, on the ſetting in of the S. W. Monſoon, the gale continued at S. W. and S. W. by W. and they were not able to weather the point.

The paſſage between Sacrifice Rock and the main is very good, having no leſs than 8 fathoms, clear ground, in mid-channel, and by going within the rock you make a ſhorter cut to Calicut.

From Tellichery to Sacrifice Rock the courſe is S. $\frac{1}{4}$ E. diſtant above 6 leagues; being in 17 fathoms; $1\frac{1}{2}$ or 2 miles without the rock, you will have very regular ſoundings from this depth to $5\frac{1}{2}$ fathoms, oozy ground.

From the Sacrifice Rock to Calicut the courſe is S. E. by E. about 6 leagues. CALICUT was formerly the reſidence of the Zamorin; and a great trade is ſtill carried on there for pepper, cardamoms, timber, &c. by the Engliſh, Danes, Portugueſe, and heretofore by the French. Its latitude is 11° 17′ North. It is not quite ſeen at firſt, as it lies in a little bay; you ſee only to the northward of it 3 white pyramids which are called the *Tombs*; another mark, equally uſeful, is a little hill upon the land, detached from the reſt, which reſemble two paps; this is more ſoutherly than Calicut; but when you come from the ſouthward, it appears to the northward of that town. In the road of Calicut, Weſt of the Engliſh factory, lies a rocky bank, upon which you muſt avoid anchoring, leſt you ſhould loſe your anchor; at a little diſtance there is no danger: ſmall veſſels may anchor between the ſhore and bank; but for large ſhips the beſt anchorage is in $6\frac{1}{2}$ or 5 fathoms, ſoft muddy ground, off ſhore about 2 miles, and the tombs bearing E. N. E. or E. N. E. $\frac{1}{4}$ N. When Calicut bears Eaſt about 6 miles, you have 15 or 16 fathoms; and when the Engliſh Flag-ſtaff is bearing N. E. by E. about 2 miles, there is a ſhoal with $\frac{1}{4}$ leſs 3 fathoms, hard rocky ground, which ſtretches N. N. W. and S. S. E. about a large $\frac{1}{4}$ of a mile, with a breadth of little more than 2 ſhips lengths, and having 5 fathoms juſt without.

The coaſt from Calicut to Cochin lies S. S. E. a little ſoutherly, in an extent of about 28 leagues: the land near the ſea is low and woody, but clear of danger, you may range it along in 8, 9, or 10 fathoms, muddy ground, at the diſtance of $2\frac{1}{2}$ or 3 miles, to 12, 13, and 15 fathoms, from 4 to 5 and 6 leagues off ſhore. PANIANY, where the Dutch have a factory, lies 14 or 15 leagues from Calicut; about half way between the two you ſee TANORE, and $3\frac{1}{2}$ leagues to the northward of this, the entrance of BEYPOUR river, which

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which is frequented by the country veſſels. To the North of Paniany there is a river larger than that of Beypour, by which the pepper is brought, but which will admit only very ſmall veſſels.

A very ſmall ſhoal, with 4 fathoms water on it, lies near the Dutch factory at Paniany, about 4 miles off ſhore; within this ſhoal you have $6\frac{1}{2}$ and 6 fathoms, at $1\frac{1}{2}$ mile from the coaſt; without it, $9\frac{1}{2}$ or 10 fathoms, muddy ground, a mile off, and 14 fathoms at 1 mile $\frac{1}{2}$ or 2 miles diſtance: therefore large ſhips ought to keep out in 13 or 14 fathoms hereabouts.

From Paniany to CRANGANORE, another Dutch factory, they reckon about 9 leagues S. by E. the land is low and ſwampy along ſhore, and only perceivable by the trees; but inland there are very high mountains, making part of that chain called THE GAUTS, which extend parallel to the whole coaſt, and begin at Cape * Comorin. To the eaſtward of Cranganore are ſeen two peaks on the tops of theſe mountains, which appear like the ears of a hare when you are abreaſt of them.

As you ſail along this coaſt you can ſcarcely ſee the town of COCHIN, eſpecially if you come from the ſouthward, the trees almoſt hiding it; you only perceive the trees, and the flag which is hoiſted upon a high tower. This town, which was the chief ſettlement of the Dutch upon the Coaſt of Malabar, lies in 9° 58′ north latitude, and in 76° 18′ longitude Eaſt of London; it is encompaſſed with a good brick wall fortified with baſtions. The river at the mouth of which it ſtands, is very deep within the bar: they build ſhips there from 200 to 300 tons: this river may be conſidered as an arm of the ſea, which forms one great iſland and many ſmall ones within the land; its entrance lies between two reefs, that extend along the coaſt North and South, and project about a mile into the ſea.

If you would go to the town in a boat or canoe, to know the right channel, ſteer toward the ſtarboard point going in; and when you are near the ſhoals, turn ſhort to the larboard, then go between the two reefs; as ſoon as you approach the ſhore, and have doubled the ſtarboard point, ſteer by one of the gates of the town, where there is a pier to land on. You may anchor in Cochin, the flag-ſtaff bearing E. N. E. or E. N. E. $\frac{1}{2}$ N.

"The bar of Cochin," ſays Lieutenant *M'Cluer*, "is navigable for ſhips drawing 14 or 15 feet water; the channel in, is to keep cloſe to the northern ſhore and breakers, ſteering direct for the Portugueſe church, which ſtands on the north ſide of the river. There is ſeldom more than 6 feet difference in the riſe and fall of the tides here: the ebb upon the bar is very ſtrong, and runs longer than the flood; ſo it is uncommon for any veſſel to get over the bar but with a ſea-wind."

Being in the offing any where about Cochin 6 or 8 leagues to the northward or ſouthward of it, you will but juſt ſee the land off deck, in 22 or 23 fathoms, or about 6

* There is a remarkable interruption in the continuity of this chain of the Gauts, oppoſite to Paniany. The break is about 16 miles wide. It is well known that ſhips which navigate the Malabar Coaſt during the N. E. Monſoon, commonly experience a ſtronger gale in the neighbourhood of Paniany than elſewhere; we may ſuppoſe that this opening in the Gauts, is a very ſufficient cauſe for ſuch an effect.

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leagues from it. You have 16 fathoms 3 leagues off, with gradual ſoundings to the ſhore, muddy ground.

From Cochin to Anjengo, the coaſt lies S. S. E. $\frac{1}{2}$ E. in a length of 27 or 28 leagues, the bank of ſoundings, ſoft ground, extends in that interval from 9 to 10 leagues off ſhore. Fifteen leagues ſouthward of Cochin is PORCAM another Dutch ſettlement. This part is the ſhoaleſt of the Coaſt of Malabar, beginning even at Paniany, but no danger, there being gradual ſoundings to the ſhore; you have 6 or 7 fathoms $1\frac{1}{2}$ or 2 miles off; and 12 or 14 fathoms at 3 or $3\frac{1}{2}$ leagues diſtance: all the coaſt is very low, and only to be diſcerned by the trees with which it is covered.

About 6 leagues to the northward of Ajengo lies *Coulan*, or QUILON, a ſmall Dutch factory; it is known by its flag and the ſeveral tall trees which appear above the fort, which is encompaſſed with high white walls. The road is oppoſite the fort, and before that fort is a reef of rocks that may be avoided by coming no nearer the ſhore than 12 fathoms. It is alſo unſafe to approach Quilon Point nearer than 12 fathoms; for under that depth there are overfalls, and hard ground, upon which you come ſuddenly from 9 to 4 or 3 fathoms.

Three miles to the northward of Quilon lies the entrance called *Little Ayvicca* by the Portugueſe, and *Iveker* river or inlet by the Engliſh, which communicates with Cochin River: its bar is navigable only for the flat bottom country-boats, there being but 5 or 6 feet on it at high water. On the outſide of the bar is a ſwatch of ſoft ground, with only 3 fathoms water, and without this a red gravelly bottom out to 9 fathoms, which runs below Quilon.

Four miles to the northward of Anjengo are the *Red Cliffs*, which are pretty high and ſteep, cloſe to the ſea; there you may get freſh water; but there being always a great ſurf on the ſhore, the watering becomes tedious.

ANJENGO, an Engliſh ſettlement in the kingdom of Travancore, lies, according to Lieutenant *M'Cleur*, in 8° 39′ 20″, latitude North, and in 77° 2′ 13″ Eaſt longitude from Greenwich.

It is rather a difficult matter for a ſtranger to diſtinguiſh Ajengo from any conſiderable diſtance off ſhore, the land to ſeaward being low and woody. In clear weather there is a good mark by which it may be known; *viz.* about 8 leagues within Anjengo, is a very remarkable peak, higher than any of the back-land, which, when it is in one with the fort, bears E. 4° S. This peak is perceivable to the ſouthward of Cape Comorin, and may be a guide along the coaſt, till paſt Quilon.

The anchoring ground off Anjengo, under 10 fathoms, is ſandy, but above that depth, you have mud; it is beſt to anchor with the fort bearing E. N. E. or N. E. by E. on account of the freſh ſea-winds, which very much retard the progreſs of the Tonies, going to veſſels which lie more northerly. Obſerve that the water at Anjengo is both bad and ſcarce.

To the Southward of Anjengo Fort there is much foul ground. The *Sullivan* and *Princeſs*

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*Princeſs Amelia* lying in that road in October 1797, the latter ſhip parted from all her anchors at different times, and they found that the cables had been cut by coral rocks.

From Anjengo to Ruttera Point the courſe is S. by E. ½ E. about 5 leagues; the coaſt between them is low to ſeaward, but covered with trees, which makes it diſcernible at a pretty good diſtance. There are high mountains a great way inland, and many buildings along the coaſt: this coaſt is bold and clear, having 11 or 12 fathoms within 1½ mile, 24 or 25 within 2 or 3 leagues, and from 30 to 45 fathoms within 4 and 6 leagues in the offing.

RUTTERA POINT, a low level land, which terminates in a bluff to ſeaward, is higher than any land hereabouts: near the ſea there is a church a little to the ſouthward of this point, and ſeveral buildings are along ſhore by which the point may be known.

It may not be amiſs to obſerve here, with Mr. *Nichelſon*, who has ſeveral times experienced it, that the weſtern coaſt of India lying N. N. W. and S. S. E. when you are 5 leagues off Ruttera Point, a N. N. W. courſe will carry you along ſhore to the Iſland Kennery, a little to the ſouthward of Bombay, and as far without it as you were from Ruttera Point; and a S. S. E. courſe from Kennery will carry you the ſame diſtance off Ruttera Point.

From Ruttera Point to Cadiapatam Point the courſe is S. E. ½ E. 10 or 11 leagues; they reckon about 4 leagues E. S. E. from Ruttera Point to POINT VENIAM, known by its high ſteep land on the north ſide, and its red cliffs on the ſouth ſide of it; half way between the two lies the ſmall Iſland of *Enciam*, with a Portugueſe church: to the northward of Enciam are the river and town of Tegapatam or Tengayapatnam; this river goes far inland: the Tonies, and even Shallops, can enter it in the rainy ſeaſon; but in the dry weather it forms a bar at the entrance, ſo that boats cannot paſs, although within it is always navigable. You have ſoundings between Ruttera and Cadiapatam Points from 24 fathoms, 3 leagues off the latter place, to 30, 4 or 5 leagues off; and to 35 or 40 at a diſtance of 6 or 7 leagues. Five or ſix miles to the north-weſtward of the latter point is *Coleche*; and on the ſhore thereabouts you perceive ſeveral buildings like pagodas. On the weſt ſide of Coleche, and about 3 leagues from Tegapatam river, begins a pretty high red land, intermixed with white, near the ſea, and very ſteep to ſeaward, which continues for 2 or 3 leagues. When you are to the northward of Coleche you may go into 20 fathoms, 2 miles off ſhore, and to 30 or 34 fathoms, with an offing of 4 or 5 leagues.

CADIAPATAM POINT, which Lieutenant *George Lewis* calls the *Weſtern Cape*, is very remarkable, being a very red ſteep land, cloſe to the ſea, with a grove of tall trees on its extremity. Off this point lie two rocky iſlots. "As I paſſed (ſays that officer) in 1783, within theſe rocks, I can very well judge of their diſtance; the one lies Weſt from the cape 3½ miles; the other S. W. 2 miles *; the cape, I take it, lying in about 8° 10′ latitude

* A large French plan of this part of the Coaſt of Malabar, laid down on the ſpot, places one of theſe iſlots 2 miles S. by W. from Cadiapatam Point, and the other at pretty near the ſame diſtance S. W. by W. it makes them lie N. W. by W. and S. E. by E. above a mile from each other. At the diſtance of 1½ of a mile South from the weſternmoſt iſlot, there is a *ſhoal*, or *rock under water*, the more dangerous as it only breaks in bad weather. Is this the ſame as the Buoy Rock?



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North: theſe rocks are ſurrounded with foul ground." S. ¼ E. from the northernmoſt of this, about 6 or 7 leagues off ſhore, lies another rock even with the water's edge, and a part of it about the bigneſs of a caſk above water; it is called the BUOY ROCK, and has 13 fathoms within a boat's length of it; without it, about ¼ of a mile it has 17 fathoms; at ½ a mile 19½ and 20; at 1 mile 22, and at 1½ or 2 miles, 23 fathoms, ſandy ground. Mr. *Nicholſon* ſounded all about this rock, and took the following bearings upon it, *viz.* the northernmoſt of the rocky iſlots N. ¾ W. the outermoſt high-land of Cape Comorin E. by N. ¼ N. the outermoſt low land, which is the very pitch of the cape, Eaſt, diſtant about 5 leagues; Cadiapatam Point, N. N. E. ½ E. and the extremes of the land to the northward N. W. ½ N. off ſhore 6 or 7 miles. It would not be adviſeable to go under 28 or 30 fathoms in the night time, or in hazy weather, the coaſt hereabouts being foul, and having ſeveral ſtraggling rocks which lie a great way off ſhore.

From Cadiapatam Point to Cape Comorin the courſe is E. S. E. ½ E. diſtance about 5 or 6 leagues. CAPE COMORIN, the ſouthernmoſt point of the Peninſula of India, lies in 7° 58′ latitude North, and about 77° 33′ longitude Eaſt of London. Its extremity is a level low land, covered with trees, which cannot be ſeen farther off than 3 or 4 leagues from a ſhip's deck; but a ſmall hill to the northward of it, which appears like an iſland when bearing from N. E. by N. to E. S. E. is what people in general take for the cape.

*N. B.* All the coaſt we have been deſcribing, from Point Veniam to Cape Comorin, is high, ſo as to be ſeen 8 or 9 leagues at ſea, not including the high lands, or the Gauts, which commence at the ſmall hill above Cape Comorin, and extend to the northward; theſe may be deſcried at 20 or 25 leagues diſtance in very clear weather: when you range the coaſt cloſe in, you cannot ſee them; except a mountain which is to the N. E. of Point Veniam, 3 or 4 leagues inſhore. Beyond river Veniam, the ſea ſhore is low, edged with white ſand, and cannot be perceived above 3 leagues, except in ſome places where there are trees that may be ſeen 4 or 5 leagues coming from the offing.

The draughts in general place two great rocks off Cape Comorin, but there is only one large one, having many ſmall rocks about it, and which is about two cables length from the ſhore. Good ſoundings are found all round Cape Comorin; to the eaſtward, the cape bearing N. W. you have from 35, 30, 25, to 20 fathoms, coarſe brown ſand, 5 leagues off; the cape bearing N. by E. 4 leagues, the depth is 20 fathoms—N. E. ¼ N. 4 or 5 leagues, 24 fathoms—N. E. by E. 3 leagues, 24 fathoms, coarſe ſand—E. ¼ S. and the extremes of land to the northward N. by W. ½ W. 4 leagues off ſhore, 30 fathoms. The cape from N. N. E. to N. E. by N. 7 or 8 leagues, you have 38 fathoms, muddy ground—N. E. by N. 6 or 7 leagues, 35 fathoms, ooze, with ſome ſand, then the extremes of the land to the northward will bear N. by W. The cape being E. N. E. and the extremes of land to the northward N. by W. ½ W. off ſhore about 4 leagues, you will find 24 fathoms, ſandy ground.

In 1759, the king's ſhip *Elizabeth* diſcovered a rock to the ſouth-weſtward of Cape Comorin, deſcribed thus in the journal of that ſhip. "On November 13, being at noon by a good obſervation in latitude 7° 46′ North, the little hill that appears like an iſland to the northward

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northward of the true Cape Comorin, bearing N. E. ½ N. and the extremes of the land to the northward N. by W. off ſhore 6 or 7 leagues, we had 35 fathoms. From noon to 2 P. M. the courſe ſteered was N. by E. 2½ miles, when we ſaw breakers on a SUNKEN ROCK, which muſt be very near the ſurface of the water, by the ſea breaking on it, whilſt elſewhere it was very ſmooth: we ſaw the breakers very plain for 15 or 20 minutes, and paſſed within a mile of them; when they bore S. E. ½ E. about 1½ mile, we ſounded and had 35 fathoms, the extreme part of the hill, which we ſet for Cape Comorin, bearing N. E. a little northerly, and the northernmoſt land in ſight N. by W. our diſtance from what we took for the cape, as well as we could judge, was 6 or 7 leagues: this is a dangerous rock, but very ſmall."

## THE LACKDIVAS, OR LACCADIVAS, OR LACCADIVE ISLANDS,

### NINE DEGREES CHANNEL, BETWEEN SEUHELIPAR AND MALIQUE.

#### DANGERS, &c. NEAR THE LACKDIVAS.

TO the weſtward of the Malabar Coaſt, is the Archipelago of the Lackdivas, Laccadivas, or Laccadives. This is the general appellation for the iſlands which extend to the northward of the Maldivas, or Maldiva Iſlands, from 10° 10′ to 12° 30′ latitude North. There are 19 principal ones, moſt of them ſurrounded with reefs and ſteep rocks, with a great depth of water cloſe to them, ſo that navigators being at a loſs to know when they are near theſe iſlands, their approach becomes very dangerous, as we have already obſerved. Between the Laccadive Iſlands are many channels, through which the ſhips commonly ſail, when bound from the Eaſt-Indies to the Perſian or Arabian Gulfs; and the moſt known, at leaſt by Europoan ſhips, as well as the beſt to keep, is that of *Mamalé* or *Mamala*, commonly called the NINE DEGREES Channel, and ſometimes the *Nine and a half* and *Ten degrees Channel*. It is bounded on the North by the Iſlands Seuhelipar and Kalpeny, and on the South by the Iſland Malique.

MALIQUE or *Malicoy*, which Lieutenant *M'Cluer* calls MINICOY, is very low, and cannot be ſeen more than 10 miles off; the centre of the iſland lies in about 8° 17′ North and 3° 42′ Weſt of Anjengo. It is about 7 miles in length, and one or two in breadth, with a large reef on the north weſt ſide, round which this officer ſailed in many places, at the diſtance of 200 yards from the beach; the paſſage lies at the north end, very intricate and narrow, and 2 fathoms were the deepeſt water on the reef, with an increaſe within: but the bottom was hard coral, which nothing but chains could ſtand, was there any ſwell; this reef forms a kind of harbour. The people were very civil, offering any thing their iſland afforded. It is very populous, well planted with cocoa-nut trees, and the only one of the Laccadivas, where they catch the delicious fiſh called by the natives *Coomelmutch*, and ſo highly eſteemed among the Malabars.



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KALPENY, which lies N. by E. ¼ E. from Malique, diſtance 37 leagues, is 4 miles long and one broad, and well planted with cocoa-nut trees; its weſt ſide is defended by an extenſive reef, breaking very high in many parts, the rocks above water. "From the north extremity," continues the ſkilful and indefatigable officer whoſe account we are tranſcribing, "we ſtood along the reef cloſe to the breakers in the Pattamar-boat, had no ſoundings till cloſe to the ſurge; and the only paſſage we could find through was a narrow opening in the reef, with only 1½ or 2 fathoms in the channel; where the boats lie, is about South from this opening. We ſtood above a mile within the reef, and had 3 or 4 fathoms, all coral rocks. There are four iſlands in this cluſter; two to the weſtward, and one to the northward of the large one. I make the centre of the cluſter to lie in 10° 7′ north latitude, and 3° 7′ Weſt of Anjengo Fort, or 73° 21′ from London."

SEUHELIPAR of the navigators, the SEUVELLIES of Mr. *M'Cluer*, conſiſt of two very ſmall low iſlands, lying about 9 miles aſunder, and ſurrounded by a moſt tremendous reef of black rocks, which in many places are above water, about the ſize of a ſhip's hull; this reef extends about 5 miles to the ſouthward of the ſouthern iſland, called *Seuhelipar*, or *Shoolpol*, which is of a circular form; the northern Seuvelly, which bears the name of Seuvelly, has not more than 1¾, or 2 miles in circuit, being ſurrounded with breakers, except a ſmall channel for boats. The riſe and fall of the tide is there about 6 feet in ſpring tides, and high water on full and change, at irregular periods, but rather before noon.

The ſouthern Seuvelly lies S. ¼ W. about 30 leagues from Kalpeny, and N. N. W. ½ W. 38 leagues from Malique, in 10° 59′ latitude North.

In ſailing through the NINE DEGREES CHANNEL, if you ſee either of the iſlands, you may take a freſh departure, and ſhape your courſe for Cape Comorin; but if no ſight of them can be got, which is often the caſe, the weather in the S. W. Monſoon being generally very cloudy and hazy, you muſt continue to ſteer to the eaſtward, in 9° 36′ or 40′ north latitude, until you ſtrike ſoundings on the coaſt of Malabar.

The remainder of the Laccadives being not ſo much within our object, nor ſo well known in general as Seuhelipar, Kalpeny, and Malique, we confine our deſcription to that iſland, which lies neareſt to the Malabar coaſt.

UNDEROOT, which is the name of this Iſland, was called *Aquilaon* by the Portugueſe; it is 3 miles long and one broad, in 10° 49′ latitude North, and 1° 5′ Weſt of Tellicherry; 15 leagues North of Kalpeny, and 40 from the Continent; on the north ſide there is an extenſive bank of ſoundings from 5 to 7, 11, 15, and 19 fathoms, chiefly coral ground; this bank is ſurrounded with coral rocks, through which there is only a ſmall channel for ſmall boats. It is well planted with cocoa-nut trees, its water is tolerably good, and fine turtle can be taken up there at any time of the day. We cannot terminate this article of the Lackdivas, without completing the ſhort account already given of their winds and currents.

In the S. W. Monſoon the winds between Cape Baſſas in Africa, and theſe iſlands, as we have obſerved, are conſtantly in the ſouth-weſt quarter, moſtly from S. W. to S. S. W. and ſometimes South, freſh and ſteady gales. As you come near the Lackdivas you meet with

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with freſher gales, and ſqually weather, except in the latter end of the ſeaſon, the end of September, or beginning of October; then near the iſlands you find little winds, and variable with ſqualls and rains.

In this track there is a conſtant current to the weſtward, moſtly to the S. W. or W. S. W. which is very deceiving, and throws ſhips much out of their reckoning; its run being ſuppoſed to be from 8 to 12 miles a day. In the S. W. Monſoon this current between the Coaſt of Malabar and the Lackdivas ſets to the S. S. E. as the coaſt lies, with a rapidity of 20, 24, or 26 miles in 24 hours; between the Lackdivas its direction is to the S. S. W. and S. W. at a rate from 18 or 22 miles in 24 hours, and you have this current about 2 or 3 degrees to the weſtward of theſe iſlands: then it ſets entirely Weſt, or W. S. W. 8, 10, or 11 miles, in 24 hours, and frequently you will find the ſhip 10, 12, or 14 miles to the northward or ſouthward of the reckoning, but generally to the ſouthward.

To the northward of the Laccadivas lie the banks of SHERBANIANG and PADUA, which extend to the 13th degree of latitude North. Theſe ſhoals are the more dangerous, as they do not break, and cannot be perceived till you are upon them; you find likewiſe ſome banks more northerly, which have been ſounded upon, and are reported not to be dangerous; but that you may not be deceived by the conformity of depth on theſe banks with that along the coaſt of Malabar, attend to the following directions.

The navigators who ſail to the northward of the Laccadives, *viz.* thoſe from the Arabian or Perſian Gulfs, think it almoſt always ſufficient, eſpecially in bad weather, or the weſterly Monſoons, to get ſoundings on the coaſt of Malabar; then they ſteer S. S. E. and S. by E. in order to keep mid-channel between the iſlands and the coaſt; but ſuppoſing the ſoundings had been taken on one of the banks above mentioned, it is evident, from their ſituation with reſpect to the Laccadivas, that a ſhip, by this courſe, would riſk to be run aſhore on one of theſe iſlands.

The beſt way to avoid this danger, when the weather will not permit to ſee the coaſt, is not to depend upon your firſt ſoundings, but to keep your courſe for ſome time; then if you loſe your ſoundings, there is no doubt but you have ſounded on one of the banks; if they continue, you may be ſure you are near the coaſt: it is beſt to make the coaſt of Malabar in 14°, from 10′ to 20′, and to get in good time into this latitude. This remark of M. *D'Après* concerns principally thoſe who are coming from the ſouthward to Goa; but if a ſhip is bound from the ſame quarter to Ceylon, there is no reaſon for ſailing to the northward of the Nine degrees channel. If you are going to Bombay in the weſterly Monſoon, it is beſt to make the land in the latitude of Kennery and Hennery, and not before; by this you have nothing to fear from the Sherbaniang ſhoal, which is placed 80 leagues from the coaſt by ſome, and 100 leagues by others.

We have taken notice already of the ANGRIA BANK, and have nothing to add to its deſcription.

Mr. *Dalrymple*, in his "Memoir of a Chart of the Indian Ocean," p. 30, quotes Captain *Forreſt*, to whom he is indebted for the account of a recent French diſcovery of a ſmall low woody iſland, to the northward of the Laccadivas; but the perſon who gave that gentleman

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tleman the information did not remember whether it was in 14° 49′, or 14° 59′ north latitude. Mr. *M'Cluer*, p. 31 of his Deſcription of the Coaſt of Malabar, makes the following obſervation on this diſcovery. "When we got into 14° 40′ North, I intended to traverſe for the iſland ſaid to have been ſeen by a French ſhip; but the ſeaſon being too far advanced, and our water a little ſhort, we ſtood for Bombay. This iſland may be doubted to exiſt, as the ſuppoſed ſituation of it is exactly in the track of the veſſels which ſtand off from Goa in the months of March and April: had there been any thing of the kind, we muſt have diſcovered it long ago: I imagine Captain Forreſt was wrong informed."

Near the Laccadivas ſeveral other dangers are mentioned by M. *D'Après*. 1ſt. A rock even with the water's edge, in 12° 32′ latitude North, and about 16 leagues from the coaſt, which is ſaid to have been ſeen by Meſſrs. *Hamilton* and *Gray*, and which has been ſearched for in vain by Lieutenant *M'Cluer*.

2d. A ſhoal on which the *Richmond* ſtruck in 1736, with rocks and breakers, in 12° 21′ latitude North.

3d. A ſhoal of breakers in 11° 5′ latitude North, 10° Eaſt from Mount Dilly, which was diſcovered by Captain *Wilky*, of the ſhip *Charles*, in 1721.

All theſe, with the bank of ſoundings quoted by M. *D'Après*, as well as the Laccadive, are at preſent omitted in Mr. *Dalrymple's* Critical Chart, we cannot therefore hazard any thing poſitive concerning thoſe dangers; but we are not the leaſt inclined to deny their exiſtence, nor can we ſubſcribe to the opinion of Mr. *M'Cluer*, that from a paſſage being much frequented, an argument may be drawn ſufficient to invalidate the diſcovery of an unknown danger in that paſſage. We muſt not cloſe this account, however, without taking notice of the ELICALPENY BANK, which lies 10 leagues N. E. half N. from Underoot, 1° 30′ Weſt of Tellicherry, and about 6 miles long; the leaſt water found on this bank was 6½ fathoms: "But by the large hollow ſwell upon it, I am convinced," ſays Mr. *M'Cluer*, "that the ſea muſt break here in the S. W. Monſoon. This ſhoal has ſharp coral rocks all over; we came to anchor with a cable to our anchor, the chain being unbent, and in 5 minutes the buoy rope was cut, although not bent to the crown, but to the ſhank of the anchor; in the ſpace of two hours, when we wanted to ſhift the anchor, with one bent to a chain we found the end of the cable only came up, and it is ten chances to one, that upon theſe banks you never recover an anchor."

## THE MALDIVAS AND THE EIGHT DEGREES CHANNEL, ISLE OF GAMA—OURO ISLAND.

BETWEEN Malique, the ſouthernmoſt of the Lackdivas, and KELAY, the northernmoſt of the Maldivas, named alſo the *Head of the Iſlands*, is the EIGHT-DEGREES CHANNEL; this head, or north end, lies in 7° 5′ latitude North, and 73° 8′ longitude Eaſt, 22 leagues to the South of Malique; it is a very low iſland, covered with trees, which can be

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be perceived 5 leagues off, in clear weather. The beſt latitude to keep in when you go through this Channel is from 7° 30′ to 7° 45′.

The MALDIVAS are very little known; they compoſe an innumerable multitude of ſmall low iſlands extending in a direction S. by E. nearly, from 7° 5′ latitude North to 0° 15′ latitude South, in which parallel the Chevalier *Grenier* places the ſouthernmoſt of them; but there is reaſon to think they extend much more to the ſouthward of the Line, the ſouthernmoſt of them having been obſerved by M. *Rongais-Violette* to lie in 0° 36′ latitude South, as we have already mentioned.

The largeſt breadth of the Maldiva range is not above 20 leagues, and is formed by ſeveral large groups or cluſters, ſometimes double, to which they give the name of *Atollons* or *Attols*; each of theſe being bordered with iſlands and rocks that are alſo ſcattered within in great numbers. Theſe Attols are ſeparated from each other by channels of different widths, and probably of a great depth; we can only mention two of them, one between the firſt and ſecond Attol, 20 leagues to the ſouth of Kelay, through which the French ſhip *La Reine* ſailed in 1750; and the other towards the middle of the range, and near *Maldiva*, or the *King's Iſland*; this is called *Poliſdoo*, or the Black Channel; it is the more remarkable, as the water there is black as ink, and bubbles as if boiling.

The Diego Rays Iſlands, and the Southampton Rock to the Weſt of the ſouthern Maldivas have been already deſcribed. To the ſouthward of the Maldivas is ſuppoſed to lie the ISLE OF GAMA, whoſe latitude in the Charts varies from 2° to 4°, but its exiſtence is denied by many navigators.

To the Eaſt of the ſame iſlands there is no other danger known but the OURO iſland. "Whether Ouro near the Line does, or does not exiſt, or whether it be an iſland or rock, or both, may admit of doubt; in the *Grenville*," continues Mr. *Dalrymple*, "I thought I ſaw the rock; it looked like a black ſmall rock, with the appearance of a ſhoal and breakers of ſmall extent; as it was to windward, and the ſhip made freſh way, it was ſoon out of ſight, and a doubt whether it was really a ſhoal, though it had to me very much that appearance. It was ſeen at ½ paſt 10 A. M. to the S. E. our courſe to noon N. E. by E. 8′ latitude obſerved 0° 47′ North, 81° 0′ longitude Eaſt of Greenwich. Its poſition will therefore be about 0° 42′ north latitude, 80° 54′ eaſt longitude.

"The *Compton*, Captain *Miſenor*, 1728, thought they ſaw the iſland Ouro, making in *Three hummocks*; they loſt ſight of it in an hour: when they ſaw it, it bore N. E. 4 leagues by the captain's eſtimation, 6 leagues by the chief-mate's: the captain's journal ſays, he is certain it was land." The *Compton's* diſcovery is generally deſcribed to be rocks as high as a ſhip's main-top, but the journal gives no countenance to this deſcription, poſitively calling it land appearing in three hummocks. They had no obſervation; the captain's reckoning makes it about 0° 16′ North, the chief-mate's in about 0° 2′ North. The accounts publiſhed on the contrary repreſent it to be in 0° 55′ ſouth latitude, its longitude is about 81° 30′ Eaſt."

*Van Keulen* ſays, "It has been ſeen three times: 1ſt, by *Chriſtian Frikkius*, who was aſhore on it in a voyage from Batavia to Surat, when they left a man upon it for



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mal-practices, and on their return went again on ſhore to look for him, but could not find him.

"Secondly, by a Dutch ſhip from Point de Galle; it was found on the ſouth point, low and flat, with a white beach on the weſt ſide, but on the north ſide a little hilly; on the appearance of bad weather the long boat which was ſent thither was obliged to return; they gueſſed the length from South to North diſtance 5, or 6 miles (20′ or 24), and 1½ (6′) from it to no ground.

"Laſtly, it was ſeen 1ſt July 1748, by the ſhip *Nearſlegheid*, in 0° 11′ North, diſtance 5 miles (20′) to the W. S. W. they ſuppoſed it was one of the Maldivas, but on the 13th July, thinking themſelves near Ceylon, they made the Nicobars, which proves it was Ouro."

## GRAFTON ROCK—APALURIA ISLAND, AND POL-VOREIRA.

SOME other iſlands and dangers remain to be mentioned, that lie at a great diſtance to the ſouthward in the Indian Ocean; theſe are the GRAFTON ROCK, APALURIA Iſland, and POL-VOREIRA or PULO VAREIRA.—Mr. *Dalrymple's* Memoir, page 20 et ſeq.

The Sunken rock named after the *Grafton* man of war was ſeen in latitude 10° 20′, and longitude by different reckonings 81° 20′ and 82° 20′; whoſe mean is 81° 50′ Eaſt.

Nearly in the ſame longitude, but in the latitude of 8° 55′ the *Triton*, Captain the Honourable *William Elphinſtone*, felt a ſhock in the night, which was ſuppoſed to have been the effect of an earthquake.

APALURIA is deſcribed as a high iſland. In 1719, Captain *Philip Worth*, in the *Townſend*, on the 26th June, latitude obſerved 11° 16′ South, longitude 66° 44′ Eaſt from the Cape of Good Hope, at ſun-ſet thought they ſaw the iſland Apaluria, but night coming on could not be certain; it bore N. W. by N.; at 7 in the morning it was ſeen again S. W. ½ S. and at noon latitude obſerved 8° 57′ South, longitude 67° 1′ Eaſt, it bore S. W. by S. ½ S. variation P. M. 3° 46′ Weſt. By projecting the run of the ſhip, Mr. *Dalrymple* finds that this iſland is to be placed in about 9° 50′ latitude South, at leaſt, and about 84° ½ eaſt longitude.

In 1731, the *Aiſlabie*, Captain *Birch*, in latitude obſerved 9° 17′—9° 28′ South, mean 9° 22′, ſuppoſed they ſaw Apaluria S. W. by S. but no diſtance is aſſigned; one journal ſays it was 10 leagues diſtance at 6 A. M. when it bore S. E. The alteration of bearings being incompatible with the diſtance run, Mr. *Dalrymple* is led to conjecture, if it was land, that the noon bearing ſhould be S. E. by S.

In 1770, the *True Briton*, on the 2d of November, latitude obſerved 9° 37′ South, longitude 65° 39′ Eaſt from Cape Agulhas (85° 34′ from London), courſe N. N. E. 2 K. 2 F. to half paſt noon 3d, when, the clouds clearing away to the weſtward, they deſcried from deck the Iſland Apaluria bearing W. by N. diſtant about 12 leagues. It appeared high and uneven, and ſeemed to extend 7 or 8 leagues North and South; the weather being cloudy ſoon loſt ſight of it. They reckoned it in 9° 35′ ſouth latitude,

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65° 48′ east longitude from cape Agulhas (85° 43′ from London), they saw a drift and many birds.

*Van Keulen* says *Pulo vareira* (POL-VOREIRA) in 9° ½ south latitude was seen by the ship *Ganſenhof*, 1712, going from Ceylon to Batavia, bearing S. W. 9 or 10 miles (36′ or 40′) diſtant.

Mr. *Dalrymple* concludes with theſe words, "I am ſtill in doubt whether theſe authorities concerning an high iſland in this quarter, can be admitted as poſitive teſtimony, though ſufficient ground for attention."

# ISLE OF CEYLON.

## THE GULF OF MANAR.

### DESCRIPTION OF THE SOUTH-EAST COAST OF INDIA.

THE ISLE OF CEYLON lies near the ſouth-eaſtmoſt part of India, and is in ſome degree connected with the continent by a narrow ridge of ſands moſtly dry, and about 11 leagues in length, to which they give the name of *Adam's Bridge:* at each end of this bridge there is an iſland, *viz.* Ramanout, or Ramanacor, called alſo Ramiſſeram on the weſt, and Manara on the eaſt ſide; and between thoſe iſlands and the main, to which they are reſpectively adjacent, are the only practicable openings in the bridge: the deepeſt is that of Manara, but the moſt frequented is the weſt channel between Ramanacor Iſland and Point Ramen of India; it is called by the Indians *Odi aroo*, or Serpents River. The width of this paſſage, according to Lieutenant *George Lewis*, is about 1½ mile, and between the two points (except ſome time before and after high water) there is a reef of rocks that ſtretches quite acroſs, leaving only an opening near the iſland ſide, of about 30 yards, which has at full ſea 5 or 6 feet water: when the Lieutenant went over it, in 1783, there was leſs than three feet at about half flood. The tide riſes there pretty near 4 feet, and flows about N. E. and S. W. or 3 hours.

Between the weſt coaſt of Ceylon and the oppoſite coaſt of India, named formerly the FISHERY COAST, from its numerous pearl banks, that ſpace of ſea called GULF OF MANAR, and by the Dutch TUTICORIN BAY, is ſhut by Adam's bridge on the north ſide, and opens from Cape Comorin to Point de Galle (Gaul) the ſouthernmoſt end of the coaſt we are deſcribing.

We know very little of this gulf, in which it is very dangerous to be embayed, and are not much better acquainted with the Fiſhery Coaſt, where the Dutch have their fort and factory of Tuticorin.

Lieutenant *George Lewis*, in the months of May and June 1783, paſſed this coaſt in a boat that kept all the way within 2 or 3 miles of the ſhore, and always came to an anchor before dark; he tells us it is clear and moderately high from Cape Comorin to MANAPAR



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POINT, on which ſtands a Portugueſe church, and which lies in 8° 22′ latitude North; then it is very low all the way, and very thin of trees. The pagoda to the N. E. of Manapar, (in form of a truncated cone) is the higheſt," ſays this officer, "which I ever ſaw in India; it appeared at firſt in the water very much like a large ſhip endwiſe to us, with all her ſails ſet.

"There muſt be ſome dangerous ſhoals to the eaſtward of Manapar Point, for the water broke very much on all ſides of us; we paſſed through them in a ſtiff gale at S. W. and anchored at the north-eaſtward of the Pagoda, for that night, in a little road.

"The firſt low iſlands that make their appearance are about 7 or 8 miles before you come to TUTICORIN; they lie about 4 miles from the ſhore, and are the only reefs that the ſea partly waſhes over. They run (as the ſucceeding iſlands partly do) nearly parallel to the coaſt, all the way to Adam's Bridge, (in latitude 9° 17′ North) ſave two pretty large iſlands that lie off Tuticorin, which appear to be covered with ſhrubs and herbage; the weſternmoſt of theſe two has ſome high buildings raiſed by the Dutch as ſtorehouſes, I believe; the trade carried on here being very great in ſea ſhells called *Shank*. The tide riſes at Tuticorin near 4 feet, and flows, full and change, about N. E. by N. and S. W. by S."

In this gulf, during the N. E. Monſoon, the winds blow conſtantly from the north-eaſt quarter, and often very ſtrong; but off Point de Galle they decreaſe and die away.

Having already ſpoken of the currents in the Gulf of Manar, we have only to add here; that notice has been taken by ſeveral navigators of currents ſetting in and off this gulf at the different ſeaſons of the year, ſo that a ſhip bound to the Malabar coaſt in the N. E. Monſoon, in order to fall well in with Cape Comorin, ought to coaſt along Ceylon as far as Caliture, before ſhe croſſes the gulf; and when making for Ceylon from Cape Comorin, to be careful of falling in to the northward of Caliture. Other experienced navigators aſſert that they never obſerved much outſet in the N. E. Monſoon, but have always found their reckoning very exact between the two places; however no error can reſult from your adopting the courſe preſcribed in the firſt caſe, and the precaution is uſeful.

## DESCRIPTION OF THE WESTERN COAST OF CEYLON, FROM MANARA, TO POINT DE GALLE, OR GAUL.

MANARA, or MANAR ISLAND, whoſe ſouthernmoſt end lies in about 9° latitude North, is known by the cluſters of cocoa-nut trees ſtanding on the Weſt of the channel between it and Ceylon: at the entrance of this channel you find 13 or 14 feet water, but a ſhip of any tolerable ſize ſhould always anchor a good league off to the weſtward of it. Along the eaſt end of Manara, within cannon-ſhot of the ſhore, you have 20 or 21 feet water.

In the fair way there is a reef, which lies N. W. and S. E. off Aripo, the ſouth end of which bears from Manara paſſage S. W. by S. about 4 leagues, and the north end;

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end W. S. W. ¾ leagues. This reef is made of broken rocks, through which there are ſeveral channels known to the natives, and practicable only to their barks in calm weather; for when it blows a little freſh from the South, the reef breaks all over; you ſhould therefore ſtand to the N. W. till about a league of its north point, and then you may, in ſmall craft, ſhape a courſe without fear to Manara channel, or any other place you think proper. Within this reef, towards the ſaid channel, the depth increaſes gradually to 13 or 14 feet water.

From Manara to ARIPO the courſe is S. W. by S. 14 or 15 miles, the coaſt forming a kind of bay between the two. Aripo is known by a ſmall village with a little church, off which N. W. by W. about 2 miles, you meet with a rock, that has 8, 9, and 10 feet water, ſo that country veſſels can paſs over it: in the right channel you find 14, 15, or 16 feet. It is requiſite then, in ſailing between Manara and Aripo, not to go under that depth.

Small veſſels bound from the ſouthward to Manara ſhould obſerve, when they are to the northward of the weſt point of Cardiva, to keep about 3 leagues off ſhore, in 18 or 20 fathoms, ſmall rocks; then to ſteer N. N. E. and N. E. by N. till they bring Aripo church to bear Eaſt; following this track, when in 4 or 5 fathoms they will ſee the reef break, as well as the rock on the reef; then they continue their courſe by keeping in the above depth of 14 or 15 feet.

But if you are bound from the ſouthward to Manara in larger ſhips, when you find yourſelf 3 leagues to the Weſt of Cardiva Point, in the above-mentioned depth, you are to ſteer North until you ſee the reef break, and then ſtand off to the weſtward about a league in rounding it. From this ſpot you can deſcry Manara Iſland to the N. E.; you may then haul in again and approach it, with the lead going and a good look out, as much as your ſhip will admit. In this track you will ſometimes find that from 20 to 25 fathoms, the depth decreaſes all at once 2 or 3 fathoms, which happens either nearer the land or the reef: but this ſudden change muſt not alarm you, if it is off the iſland; for having once got into 7 or 8 fathoms, you meet with regular ſoundings, decreaſing gradually towards ſhore to 5 fathoms, ſandy ground: if nearer to the reef you have 8 fathoms, gravel and ſmall rocks, you muſt immediately ſtand off.

From Aripo to CARDIVA, or CARIDIEN ISLAND, there are 7 or 8 leagues S. W. by W. This iſland is very narrow, crooked, and between 4 and 5 leagues long. Its ſouthernmoſt point is a reddiſh hill, ſteep, and ſhaped like a cone, in 80° 26′ latitude North; you have 8 or 9 fathoms 4 leagues off, rocky ground, coming from the Weſt. In clear weather, at 4 or 5 leagues diſtance, you may ſee the bottom in 15 or 20 fathoms. In approaching it the depths are unequal, and require a conſtant uſe of the lead; be not ſurpriſed if after having but a few fathoms you find ſuddenly 8 or 9, becauſe from 3½ leagues off ſhore, as you ſtand towards it, the ground is very uneven, between 8 and 9 fathoms, to about a league off the iſland, where there is a bank with only 3 fathoms, flints, on it; when you are paſt this bank, the ground is ſandy in 5 fathoms. To the S. E. of this iſland there is a bay about 2 leagues from Calpentyn.



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The weſternmoſt point of CALPENTYN ISLAND is near 6 leagues S. W. diſtant from the ſouth point of Cardiva, with uneven ſoundings in this part nearly as above. The inner edge of the Three fathoms bank, lies within a muſket-ſhot of the ſhore, extending beyond Calpentyn; and about 2 miles farther there is a ledge of rocks on which the ſea breaks. This point is eaſily known by a thick tuft of trees, the only ones to be ſeen, except on the main iſland, to the eaſtward, where you perceive about 100 cocoa-trees. Between theſe trees and the thicket, at the bottom of a little valley, is a bight called *Pacar*, or *Napacar Bay*, which affords no ſhelter from the weſterly winds; the ground beſides, as well as in the adjacent parts, is there ſo foul and dangerous that you cannot anchor in any part without the riſk of loſing your anchors, even within the Three fathoms bank, except very near Cardiva or Calpentyn, in 4 or 5 fathoms.

From Calpentyn Point to CHILLAU they reckon 8 leagues, and the courſe in the offing is S. S. W. To the ſouthward of *Neverary Bay* begins a ledge of rocks and coral, ſtretching along to the coaſt within a league northward of Chillau, where, as it widens about a league, it will be proper to keep the lead going; farther off the ſhore the bottom is ſand.

Chillau River diſcovers itſelf by a ſandy hill, on which ſome buſhes are ſeen, and a round hummock near it. In coming from the ſouthward you may ſail near the coaſt, till oppoſite the river; but to the northward of it, you muſt keep at 2 miles diſtance from this ledge of rocks and coral, before you ſtand in for the ſhore: the bottom between Calpentyn and Chillau, is fine ſand, ſometimes a little coral; but the nearer you approach Calpentyn, the ground becomes worſe for anchoring.

From Chillau River to MARAWIL the courſe is S. by W. weſterly, about 6 leagues; the water is deeper between theſe two places than in any above mentioned, and you may approach it by the help of the lead. Marawil is known by 2 or 3 gardens of cocoa-trees which ſtand a little inland, and in coming from the northward reſemble thoſe of Napacar or Calpentyn.

From Marawil to CAYMEL, the coaſt lies S. by E. 4 leagues: this is a ſmall river, whoſe ſides at its mouth, ſhew a point full of cocoa-trees, when you come from the northward; the bottom is good between theſe two places, eſpecially near the ſhore.

NEGOMBO lies $1\frac{1}{2}$ leagues S. W. by S. from Caymel, and the land ſeems to form a bight from the northward. If you are off Caymel you muſt edge a little from it, on account of a rocky ſhelf between this place and Negombo, and keep 2 leagues off ſhore, in 7 or 8 fathoms, till you bring Negombo to bear S. E. by S. by this means you avoid a rock which lies N. N. W. of the flag-ſtaff, or the north point of the fort; cloſe to it you have 6 fathoms, and upon it 10 feet. When bound to Negombo, from the ſouthward, bring the fort to bear S. E. and keep that courſe till you anchor, without borrowing any more to the northward: Negombo is known by a point the moſt projecting on the whole coaſt, and on which is a thick wood of cocoa-trees; off this point lies a ledge of rocks of ſmall extent.

From the outer point of Negombo, they reckon about 6 leagues to COLOMBO; the ground is good all the way, except over againſt a little river, where a rocky point is projecting about 2 miles. Keep in 10 or 12 fathoms, then you may anchor before Colombo, in 6 or $7\frac{1}{2}$ fa-



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thoms, the flag-ſtaff bearing South; but come no nearer the river, becauſe of the rocks lying at its mouth, and round the ſouth point.

From Colombo to PANTURE the courſe is S. by E. 4 leagues: between the two is GALKISSE, a little round bay, open and without ſhelter; ſhips generally coaſt along to this bay about 4 miles off in 13 fathoms, ſand. In ſailing from Galkiſſe, they keep in 18 fathoms, for fear of the rocky ground near the coaſt. Panture is a river known by 2 rocks above water, which are on the north ſide of the entrance, at the diſtance of two gun-ſhots. The anchorage is to the ſouthward of theſe rocks in 10 or 12 fathoms, 2 miles off ſhore.

From Panture to Caliture, or *Calutarè*, the diſtance is near 4 leagues S. by E. To the northward of Caliture lies a rocky bank, and on the ſouth ſide of the river ſtands the fort on a ſmall eminence. If you intend to anchor there, your mark is two hummocks near each other, and not far from the ſhore, the northernmoſt of which is the loweſt: as ſoon as you ſee the fort between theſe hummocks, ſteer right for them, into 4 or 5 fathoms, but never come to the ſouthward of them, for fear of accident. Obſerve that ſtanding towards the fort, the bottom is very foul in 15 or 16 fathoms, but tolerably good from 6 to 4 fathoms.

It is reckoned about 2 leagues South from Caliture to BERBERYN ISLAND; and you ſail along ſhore in 7 or 8 fathoms. To the ſouthward of Caliture is a rock 12 or 13 feet under water; it bears S. W. $\frac{1}{2}$ S. from the fort, and S. W. by W. $\frac{1}{2}$ W. from the Hillock of *Makvenien*. The paſſage is good in 4 fathoms, and about 2 miles wide, between the ſhore and this rock: but it is better to go without coming nearer than 6 fathoms. Between Makvenien and Berberyn the bottom is foul in 15 fathoms, and tolerable from 15 to 20; but above 20 it is very bad, rock and coral, ſo that in ſounding ſcarce a grain of ſand will come up with the lead.

Berberyn is a ſmall iſland, very near Ceylon; you may anchor to the northward of it in 6 or 7 fathoms; there is alſo a little bay fit for barks or long boats; care muſt be taken in rounding the point, where there are ſeveral rocks: the anchorage of this bay is in 2 or 3 fathoms, ſand, a ſmall muſket-ſhot off ſhore.

From Berberyn Iſland, to point COCACHEIRA, the courſe is S. S. E. 4 leagues, and between the two, about 3 miles from Berberyn, you meet with river BENTOTTE, to the ſouthward of which is a ſmall fort upon a riſing ground; the anchorage there is good in 12 or 13 fathoms, black ſand. To the northward of this river are two rocks plainly to be ſeen. Between Berberyn and Point Cocacheira, at 4 leagues off, you have from 28 to 30 fathoms, hard ground; and from the latter place you may range along very near in 7 or 8 fathoms, but at 4 leagues diſtance, 100 fathoms are not enough ſometimes to reach the bottom.

Five leagues to the S. E. of Cocacheira lies RAGAMNA Point, ſtretching into the ſea, with ſome cocoa-nut trees upon it, and ſome large high rocks on the edge of the ſhore, by which it is eaſily known. In this courſe you deſcry a little river ſcarce practicable for boats, and to the ſouthward of it a reddiſh hummock ſteep to ſeaward; about a muſket-ſhot to the northward, and 3 leagues from Ragamna, is a garden of Cocoa-trees, called Amlam-goda;

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goda; four miles to the ſouthward of this garden a reef runs out about 2 miles, upon which the ſea is continually breaking: you muſt come no nearer in this part than 20 fathoms; at 15 the ſoundings are irregular and very foul to 9, 8, or 7. It is in ſome places ſandy, but not very clean.

From Ragamna to Point de Galle the diſtance is about 4 leagues S. E. by E. in coaſting along you muſt not come under 25 fathoms. A good league to the Weſtward of Ragamna, and over againſt a reddiſh hummock cloſe to the ſea, lies the rock of *Gindure*, having only 12 or 14 feet water, and 15 or 16 fathoms all round it. To the ſouthward of Gindure there are alſo two rocks under water, within which, about a cable's length, you have 15 or 16 fathoms water. Theſe rocks can be eaſily known; they are but 5 or 6 feet under water, and the ſea breaks over them continually: boats and ſmall veſſels may paſs between them and the ſhore, in 9 or 10 fathoms, but it is better to go near the rocks than the ſhore, becauſe the ſoundings are uneven, and increaſe or diminiſh 2 or 3 fathoms at a caſt, yet you have never leſs than 4 or 5 fathoms. The two ſunken rocks are at about 3 or 4 miles from Point de Galle.

Point de Galle lies in 5° 48′ latitude North and 80° 30′ Eaſt of London. It is bluff to ſeaward, and riſes gradually higher toward the land; the ground about it is pretty mountainous, but to the weſtward the land is low. Within Point de Galle is a bay where the Dutch have a conſiderable ſettlement, well fortified with a good garriſon. They do not ſuffer any ſtrange ſhip to enter, without ſending them one of their pilots, in order to preſerve the knowledge of the pilotage to themſelves. Nothing farther can we remark concerning this place, unleſs it is that you are not to approach it nearer than 16 or 18 fathoms, the flag-ſtaff bearing N. N. E. if you would anchor in good ground. Before the bay lie two rocks, one of which is 15, the other 17 feet under water, and round them you have 10 or 11 fathoms; if you come no nearer than 15 fathoms, you run no danger of foul ground: on the eaſt ſide of the ſame bay a rock is ſeen on which the ſea breaks.

## INSTRUCTIONS for SAILING between POINT de GALLE, and CAPE COMORIN, in each MONSOON.

POINT de Galle and Cape Comorin lie from each other N. W. ½ W. and S. E. ½ E. very near, at a diſtance of about 70 leagues.

In the N. E. Monſoon the currents are very uncertain about Point de Galle and in croſſing the Gulf of Manar. They ſet off the point W. S. W. and have been found often, in the opening of the gulf, to run S. W. very ſtrong, ſo that ſhips, in light winds and calms, have ſometimes been driven ſuddenly on the Maldivas. To avoid this it would be adviſable to round the Iſle of Ceylon, at leaſt as far as Caliture juſt now deſcribed, from whence, and not before, you may ſafely croſs to Cape Comorin. If unexpectedly you ſhould happen to make the land to the eaſtward of the cape, avoid coming too near the coaſt, on account of the dangers which have been already mentioned.

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Being 2 or 3 leagues off Point de Galle with the *Haycock** and the point in one N. by E. ½ E. you will have 30 fathoms water. Thence, according to Mr. *Nichelſon*, you ought to coaſt it along ſhore, taking care to keep your offing, from 2 to 4 or 5 leagues, in depths of water during the day from 44 or 40, to 25 or 20 fathoms; under the latter depth it would not be prudent to go, on account of the ſeveral ſtraggling rocks, 2 or 3 miles off ſhore, deſcribed in the preceding ſection; and in 25 fathoms you will not be more than 3 miles from the coaſt.

In the night time you ought not to go under 28 or 30 fathoms; as in ſome places with that depth you will not be more than 4 or 5 miles off ſhore:—but whether at night, or during the day, you are not to ſail in more than 40 or 44 fathoms, or elſe you will ſoon be off the bank, and have no ſoundings. If you ſhould then find light winds or calm, and the current ſoutherly, the ſhip would be driven back again, or perhaps off the coaſt; this can be prevented by keeping in the depths recommended, where you may anchor and make ſure of your progreſs.

As you come near Caliture, you may make bolder with the coaſt, and ſtand into 15 or 16 fathoms, clear ſandy ground; by ſtanding inſhore, in blowing weather, you will find the ſea very ſmooth. "I have ſeveral times," continues Mr. *Nichelſon*, "coaſted it along this part of Ceylon, and have ſometimes met with a ſmall ſoutherly current, frequently no current at all; and have found when it has blown very freſh at North or N. N. E. for 24 hours together, a very ſtrong northerly current, with which, by keeping in the depth above mentioned, I have turned it up along ſhore, and gained a great deal of ground."—From Caliture you may ſafely ſtretch acroſs the Gulf of Manar for Cape Comorin.

In the S. W. Monſoon this paſſage becomes more difficult, as the currents ſet ſtrongly into the Gulf of Manar; by them many ſhips have been driven to the northward into the gulf; and it is not without great loſs of time, and imminent danger, that they have got out again. "I never experienced any of theſe ſtrong currents," ſays the gentleman above quoted; "nor do I believe any ſhip that keeps Ceylon cloſe on board, within 2, 3, or 4 leagues of the ſhore, will meet with any of them."

## THE SOUTHERN COAST OF CEYLON.

### FROM POINT DE GALLE TO THE ELEPHANT AND THE GREAT BASSAS.

THE coaſt from Point de Galle to RED-BAY lies about E. by S. 5½ or 6 leagues: and about a league to the weſtward of this bay is a ſmall iſland called *Woody Iſland*, from its being covered with trees. In coming from the weſtward to enter Red-Bay, you are to range along the coaſt in 12 and 14 fathoms water, till you have doubled a ſteep red point which makes the entrance: then you deſcry a reef, very near the ſhore, off which you are to ſail in the depth above ſaid, till you ſee to the weſtward of the bay an iſlot cloſe to the ſhore, and a rock within the reef: you muſt continue to ſteer to the Eaſt until you bring

* A remarkable hill ſituated on the level part of the country, and taking this name from its form.

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the iſlot and the rock in one: as ſoon as they are brought to bear, North and N. by W. you are to approach it within a ſtone's caſt, and when it is paſſed at a cable's length, you come to an anchor in 4½ or 5 fathoms; ſhould you paſs it at 2 cables' length you riſk to meet with very foul ground. When the iſlot and the reef are in one, it is abſolutely requiſite to ſail toward the reef, as we have ſaid, that both ſhould remain to the N. N. W. for fear you ſhould fall at the reef's point on a ſunken rock on which there is only 11 or 12 feet water.

To the eaſtward of the bay the land is high, and there is a little village called Mietre, but it is not poſſible to land on this part of the coaſt on account of a ledge of rocks which borders almoſt ¾ of the bay. In going out of this bay you are to follow the reverſe of the directions to come in, and when in the depth of 14 fathoms, you may ſteer at pleaſure, but let the lead be frequently hove.

From Red Point to MATURA, or *Mature*, the diſtance is about 3 leagues E. by S, 4° South: this is a Dutch ſettlement having a ſmall fort, which may be ſeen a great way at ſea, bearing from N. N. W. to N. E. as the coaſt thereabouts is pretty high: here you may get plenty of wood and water.

Matura Bay, at the mouth of a river of the ſame name, is very open, but you may anchor before the town, and ride ſmooth enough in the N. E. Monſoon in 22 or 20 fathoms, ſand mixed with ſhells and ooze; Matura Iſland bearing N. E. ¼ N. and Dondra head N. E. by E. or E. N. E. off ſhore about 2 miles; under 20 fathoms in Matura road it is foul ground, unleſs in ſome ſmall ſpots known only to the Dutch.

Matura Iſland is ſmall and rocky, much reſembling a haycock, and lies to the eaſtward near the main land; oppoſite the fort, behind the iſland, is a good ſhelter for boats, where they come to anchor, as they cannot land on account of the ſurf and ſhallowneſs of water; the Dutch ſend off canoes to carry people out of the boats on ſhore.

The entrance of the river is about ½ a mile to the weſtward of the fort; boats go a ſmall diſtance up this river to fill water, but the coming in is made dangerous by the rocks which lie under water; and the outſet of the ſtream is ſo ſtrong, that any boat touching on theſe rocks is in danger of being overſet, therefore it is beſt to have the natives to pilot you in and out, and then you may water with expedition.

Going to DONDRA HEAD from Red Point the courſe is E. by S. ¼ S. 4½ leagues, and from Matura S. E. ¼ E. 4 or 5 miles. Dondra Head is a low point of land, whoſe extremity, lower than the reſt, is planted with a large cluſter of high cocoa-nut trees, which makes it eaſily known; to the S. E. of the weſt part of this head lies a ledge of rocks, ſtretching out to S. W. by W. about 1½ mile, with only 9, 10, or 12 feet water upon them, and on which the ſea breaks ſometimes very high; towards the ſea you have 6 or 8 fathoms water, and within, towards the coaſt, only 5, or 4; you muſt approach this ledge with great caution: when you are off Matura in 12 fathoms, if you ſteer E. S. E. 5° S. you will double Dondra Head at 2 miles diſtance, in 15, 16, and 18 fathoms.

A little to the eaſtward of Dondra Head are the *Red Cliffs*, a pretty remarkable land cloſe to the ſea; the coaſt about them is very ſteep.

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From Dondra Head to GAELIES the courſe is Eaſt 3° S. 1 league. Gaelies Point is high and ſteep in ſuch a manner that to anchor there you muſt range it along at half a muſket-ſhot; otherwiſe it is very difficult to enter it, and to anchor without riſk of loſing your anchors; you may approach it as near as you pleaſe, there being no danger but what is viſible. Gaelies is a ſmall bay, which is rounding to the weſtward; ſhips may ſafely anchor there in 4 and 5½ fathoms, oozy ground; they are ſheltered from the Weſt, North, and South winds; but thoſe from the Eaſt bring in ſome ſwell.

From Gaelies to DICKWEL the diſtance is 2½ leagues E. N. E. it is known by a garden of cocoa-trees about 2 miles long. *Bemberande* lies in the middle of both, and between it and Dickwel a rocky ledge, ſtretching near 2 miles from the coaſt, and on which the ſea often breaks, muſt not be approached under 15 fathoms.

From Dickwel to NIELWEL they reckon 2 leagues to the E. N. E. you coaſt it along ſhore at a gun-ſhot diſtance in 12 and 14 fathoms. Nielwel is a place of ſome trade, and in the weſt part of its bay ſhips are ſheltered from the S. S. W. and Weſt winds: it may be known by a pretty high ſteep point on the weſt ſide, having a large white building with a cupola, which makes it very remarkable; in coming from the weſtward this point appears as forming an iſlot, covered with cocoa-trees; you muſt range it along as near as that of Gaelies in 12, and 14 fathoms; at the eaſt point a rock ſhews itſelf above the water, but there is no other danger within the bay, except three flat rocks near the ſhore, and a ſhoal over which they ſay the largeſt ſhips can ſail; it is adviſable however not to try it without your lead. Off this place, at 4 miles diſtance from the ſhore, you will have 32 fathoms, at 6, 8, or 9 miles 52 fathoms, and without that no ſoundings.

From Nielwel to COENACKER, or *Kerketoes* Bay, the courſe is E. by N. ½ N. 5 miles: you muſt keep near the land, as it has been ſaid, in 12 or 14 fathoms water: this bay is pretty large, and directly in the middle of its opening you perceive a great rock, with a ſmall ſteep point to the weſtward, which is to be approached very near in coming in. Two leagues farther to the E. N. E. 5° E. lies Point *Tangale*, which has a ſmall bay.

They reckon from Tangale to WALUWE 4 leagues E. by N. ½ N. the land between theſe two places is low and ſandy near the coaſt, but ſteep and lofty as your remove from it: you are to range it along 4 miles off ſhore, in 20, and 22 fathoms, ſand mixed with coral.

Waluwe is a large river, with a ſmall hill to the northward; off its mouth about 4 miles lies a rock on which the ſea is commonly breaking: you may, with ſhips of middling ſize, ſail between the coaſt and the rock in 7 or 8 fathoms, ſandy ground.

From Waluwe the courſe is E. N. E. northerly, to MAGO, a point encompaſſed with rocks, and as the foul ground begins at half way, you muſt keep in 22 and 24 fathoms. Between Waluwe and Mago are the ſalt-pans of *Mazen*, a cove practicable only for long boats, and with a danger in the middle of it.—*N. B.* According to the *Engliſh Pilot*, a rock to the eaſtward of Mago is ſeen above water 7 miles from the coaſt: M. *D'Après*, from the report of ſeveral navigators who have ſailed along this paſſage, is of opinion that this is only one of the ſtraggling rocks of the Great Baſſas, which lies nearer the ſhore than the reſt; but he adviſes you nevertheleſs to be upon your guard.



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From Mago to the Elephant they reckon 6 leagues to the N. E. THE ELEPHANT is a remarkable high rock, which becomes the more conſpicuous as there is no other rock or hill near it; and its ſituation cloſe to the ſea makes it perceivable at a great diſtance. To the S. 5° E. of the Elephant are the Great Baſſas.

## THE GREAT BASSAS.

### DIRECTIONS FOR SAILING BETWEEN DONDRA HEAD AND THE GREAT BASSAS.

#### BALE OF COTTON ROCK.

THE GREAT BASSAS, in 6° 2′ latitude North, are a cluſter of rocks, upon which, according to the natives, there was formerly a ſmall pagoda made of braſs; they extend about 1¼ mile in length, and as much in breadth; the ſea breaks very high on them, and ſome of the rocks are a conſiderable height above water; you muſt give them a good birth, coming no nearer than 34 or 35 fathoms, but never under 30, and in the night not under 40 fathoms. They lie 3 leagues from the coaſt, between which and this reef, you may ſail ranging along the ſhore, in 8, 9, 10, and 12 fathoms; you are not however to approach the coaſt at leſs than 8, nor the Great Baſſas nearer than 12 fathoms, till the Elephant is bearing N. N. W. and when half way up the channel, ſteer E. N. E. or E. by N. if you are nearer the land, till you come into 30 fathoms, then bend your courſe N. E. to paſs to the eaſtward of the Little Baſſas.

Between Dondra Head and the Great Baſſas there is deep water near the coaſt, as we have already ſeen; but in all this part you will not have ſoundings any where above 2 leagues, and in ſome places above 2 or 3 miles from the ſhore; you are not then to depend entirely on your lead in the night, but muſt keep a good look out.

Ships which are ſailing from Dondra Head to the Great Baſſas, in the S. W. Monſoon, having then a fair wind, always ſhape a courſe to go clear of the latter. In the N. E. Monſoon, being off the Great Baſſas and bound to the weſtward, having likewiſe a fair wind, they direct their courſe to the Red Cliffs, or Dondra Head. A W. by S. courſe, from the Great Baſſas, diſtance about 20 leagues, will bring them with Dondra Head; but truſt not too much to your courſe, for the currents ſet then ſtrongly to the S. W. and will carry you off the land, therefore you muſt keep the ſhore cloſe on board, the more ſo as there is no danger within 2 or 3 leagues.

In coming from Dondra Head to the Great Baſſas the *Engliſh Pilot* ſays you ſhould ſteer E. S. E. and M. *D'Après* that you ought to ſteer Eaſt, which will carry you 8 leagues to the ſouthward of the Great Baſſas; and that he takes to be ſufficient for the ſet of the currents to the northward, adviſing you to ſound from time to time. Mr. *Nicholſon* differs from them both, being of opinion that a ſhip 2 or 3 leagues off Dondra Head

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Head may with great ſafety ſteer E. by N. which will carry her 4 or 5 leagues without the Great Baſſas. The currents, which are very changeable in theſe parts, as often run to the weſtward as to the eaſtward, and much oftener to the South than to the North, they being in general ſouth-weſterly; this circumſtance muſt render you cautious in regard to the reckoning of the diſtance from Dondra Head to the Great Baſſas; the diſtance is 20 leagues, yet when you reckon you have ſailed 15 or 16 leagues, you will then be oppoſite to the Great Baſſas: ſeveral ſhips have even thought they had got no farther than 12 or 14 leagues.

The obſervation is not to be neglected both for the direction and the length of your courſe.

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BEFORE we proceed farther on our deſcription of the Coaſt of Ceylon, it ſeems neceſſary to give an account of the BALE OF COTTON ROCK; its poſition, from report, being relative to Point de Galle, connects it in ſome manner with the iſle of Ceylon. We are going to tranſcribe a letter which was communicated by Governor *Cartier*, at Calcutta, to Captain *Leſley* of the *Orford* man of war. This letter had been written by Mr. *Callendar*, and upon it depend the exiſtence and poſition of the Bale of Cotton Rock.

" SIR,

" After being ſhipwrecked in the river here (of Calcutta), along with Captain *Dockerty*, on March 2d, 1767, I took my paſſage on board the *London* country-ſhip for Bombay, and on the 28th of the ſame month the pilot left us. We had light airs and calms all the way down the Bay (of Bengal) with a ſtrong current ſetting moſtly to the eaſtward; and to the beſt of my remembrance, as I have had the misfortune to loſe my journal, on the 5th of May, about .... o'clock in the forenoon, we then ſteering ſouth-eaſterly, with a variable light breeze from the northward, we ſaw ſomething a-head of us, in appearance like a large *bale of Cotton*, being very white and round; it bore from us about S. S. E. diſtance about 2 miles. The ſea being very ſmooth we kept our courſe as before we ſaw it, and by the time we had got an obſervation, it being then noon, the rock bore, I think, about Eaſt, or E. N. E. diſtance ½ mile or leſs. The latitude, by the medium of 3 obſervations, was 5° 22′ North, and longitude from the meridian of Point Palmiras was about 51 miles Eaſt. At the ſame time we ſounded, and had no ground at 170 fathoms: that afternoon we had an azimuth variation 00 14′ Eaſt. When we went cloſe paſt the rock, being then on the weſt ſide, it was of a dark brown, and had ſomething like moſs upon it. I think it may be about 40 feet long, and about half as broad, and not above 2 feet above the ſurface of the water. At 4 o'clock that afternoon we ſaw a ſail ſtanding to the eaſtward, and at ſun ſetting ſpoke with her, being a Portugueſe ſhip from Point de Galle bound to China, who informed us ſhe was then one hundred leagues to the weſtward of her port, and had left it ſeven days with a fair wind, which had continued to the time ſhe ſpoke with us. By comparing our accounts with her's, we were, I think, about 3 degrees or



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more to the eaſtward of them. As I obſerved before, we had a ſtrong current ſetting to the eaſtward; the ſame was obſerved by them, and I ſuppoſe might ſet them in theſe ſeven days, one degree or better to the eaſtward of their account. We having left the land ſo long, I think the Portugueſe account is more to be depended upon than ours, as they had a fair wind, and no allowance to make for lee-way.

"The Captain's name was *Widgeon*; the ſecond officer was Captain of a ſhip when I left Bombay (I think her name was the *Diana*), and has got an account of this paſſage; his name is *Thomas Sherwood*, and I believe he gave an extract of every particular to one Mr. *Spencer*, who is now in Calcutta, and is employed in buſineſs with Captain *Wedderburn* of the Bankſall.—This is the moſt ſatisfactory account I can give you, Sir, as I have no extract of my journal left, nor any thing I can go by with any certainty; I hope you will be pleaſed to excuſe what errors you may find in this account, when you come to compare it with any other. I am, Sir, yours, &c

"*Alexander Calender*"

"How navigation," obſerves Captain *Leſley*, "might be improved did but men in general take the ſmalleſt pains! What ſtrange people theſe were that did not ſend a boat to this rock? By ſuch a neglect they leave it a doubt but it might be a bale of Cotton, which are frequent in theſe ſeas."

The account given by Dr. *Dalrymple*, page 33 of his Memoir, and received by him from Captain *William Smith*, late of the *Houghton*, does not agree entirely with the above letter.

"A rock in 5° 22′ North, 100 leagues from Point de Galle (110 leagues by a Portugueſe veſſel, ſeen ſame day in April 1767, which had juſt before ſeen Point de Galle). The rock is 1½ or 2 feet above the ſurface of the water, ſteep-to, about 12 feet broad and 20 feet long, ſmooth at the top, lying S. E. and N. W. about 3 ſhips length from it, no ground at 170 fathoms.—This was ſeen by Captain *Widgeon* of the ſhip *London*, belonging to *Abram* of Calcutta, the mates *Meldram* and *Sherwood*; *Meldram* is dead; *Sherwood* is captain of the *Diana* of Bombay. This extract from Mr. *Callendar*, a paſſenger aboard at that time, *who was on the rock himſelf, who gave this to Major Watſon at Calcutta.*"

Mr. *Dalrymple*, however, after having marked the Bale of Cotton Rock in lat. 5° 22′ North, and 5° 30′ Eaſt from Point de Galle, or about 85° 25′ from London, is of the ſame opinion with Captain *Leſley*, and doubts the exiſtence of this danger.

## THE EASTERN COAST OF CEYLON,

### FROM THE ELEPHANT, OR THE GREAT BASSAS, TO TRINCOMALEY.

### THE LITTLE BASSAS.

FROM the Elephant to Julius Nave the diſtance is 5 leagues N. E. by E.; in that interval you ſee two reefs with only 7 or 8 feet water on them, one near, and the other 2 miles off the ſhore. JULIUS NAVE is a high white ſandy point cloſe to the ſea, within which

which you may ſafely anchor on a good bottom. The Little Baſſas are ſeparated from this point by a channel about 10 miles broad, through which one may ſail in 5 fathoms; you have 6 or 7 near the coaſt, and 5½ in the middle.

The Little Bassas are under water, and no part of their rocks is ſeen, but the ſea generally breaks on them very high: by the appearance of the breakers they may be about a mile in length, and as much in width, being the more dangerous as you find deep water cloſe to them, no ground at 30 fathoms, and the next caſt 16 within 1½ mile of the breakers; they lie S. S. E. of Julius Nave and N. E. or N. E. ½ E. 7 leagues from the Great Baſſas: between the two, at about an equal diſtance, there is a ſmall bank with only 8 fathoms on it, but no danger to fear; you may coaſt it along between the two Baſſas, about 3½ or 5 leagues off ſhore, in 35 or 36 fathoms water, though there is no truſting to ſoundings in this part.

Should the ſea be ſo uncommonly ſmooth as not to break on the Little Baſſas, the beſt mark to know when you are near them is a pretty high hill on the ſhore, without any other near it; on the ſouth ſide near its ſummit ſtands a conſpicuous rock like a chimney on the top of a houſe, whence it is called Chimney Hill; when this hill is on with the Little Baſſas it bears exactly N. W. take notice alſo that theſe dangers bear E. ½ S. from the Elephant: if you keep the Elephant W. ¼ or ½ N. till Chimney Hill is brought to bear W. N. W. ½ W. you will then be clear to the northward of the Little Baſſas.

You muſt obſerve that farther in land to the northward of Chimney Hill, there is another not quite ſo high, which has upon, or near its north top, a rock riſing up in the ſame manner as that on Chimney Hill, though much larger, and reſembling a pagoda; this is not to be diſtinguiſhed from the other hills but by the following mark: when Chimney Hill bears N. W. it is then touching the north part of Pagoda Hill; and when it bears N. W. ½ N. Pagoda Hill is ſhut in with it. The land hereabout is broken and very mountainous.

From Julius Nave Point to Low Bank Point, the courſe is N. E. by N. northerly, about 5½ leagues; a ſand bank runs 4 miles into the ſea at Low Bank Point, ſo that you muſt take care to keep wide of it: the anchorage is good in 12 or 13 fathoms all along this coaſt. Sixteen miles farther to the N. N. E. you come to Agaus (called in the Charts *Aganis* and *Agui*) which is known by a ſmall adjoining peak like a tower, with two ſmall hummocks to the northward of it, a cluſter of cocoa-trees, cloſe to the ſhore. This peak is the laſt high land you perceive near the ſea till you come to Trincomaley. In coming from Low Bank Point you range along, 5 or 6 miles off in 25 fathoms, ſand mixed with coral; the ſhore is bold, and you have 15 fathoms within a muſket-ſhot of it.

From Aganis to Aregam, the coaſt is bearing N. by E. 4 leagues; off Aregam lies a reef which extends 2 miles in the offing: this place is known by two hillocks in land at a ſmall diſtance from each other, and by a cluſter of cocoa-trees, but not quite ſo large as that of Aganis; you coaſt it in 22 or 24 fathoms. Four leagues and a half N. by E. are reckoned from Aregam to Poawegam, called alſo *Tricule*, which is known by a grove of cocoa-trees, incloſing a Pagoda. The land to ſeaward is low, and mountainous in the country:

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country: there is a reef about one mile off ſhore: you muſt along this part keep in 22 fathoms, though it is not very good for anchoring, on account of the rocks ſcattered in ſeveral places.

The direction of the coaſt between Poawegam and Batecalo is N. by W. diſtance 8 leagues. To ſeaward between the two, the land continues to be low, and up in the country there are ſome very high mountains, one of which is called by the navigators FRIAR'S HOOD, on account of its reſembling, at one extremity, that kind of head-dreſs; although this form is only perceived while it bears from the Weſt to the South, for when the bearing is N. W. or N. N. W. its peak appears like the top of a great pyramid.

There is another mountain, 5 or 6 leagues to the ſouth-eaſtward, which is not quite ſo high, but having a great reſemblance to the Friar's-Hood, it is ſometimes miſtaken for it: this is called the *Falſe Hood.*

The Friar's-Hood is the moſt remarkable mountain of this part of Ceylon; ſhips fall often with it, and as often take their departure from it. Its latitude is 7° 20′ North.

BATECALO is known by the mouth of a ſmall river, which cannot be ſeen till you are to the northward of it: it is very narrow, turns ſhort round to the ſouthward, and is parallel to the beach along ſhore. On the north ſide of the entrance, the Dutch have a ſmall factory-houſe with the flag-ſtaff on it, by which alſo this place may be known.

Captain *William Brereton*, of the Falmouth man of war, 1762, ſpeaks thus of Batecalo: "The road is very ſafe during the S. W. Monſoon, as the winds are moſtly off ſhore; and if they ſhould come in from the ſea, the rocky reef breaks off the ſwell, ſo that you ride with ſmooth water; the proper birth being the Friar's Hood S. S. W. and the river's mouth South 1½ or 2 miles diſtant. There is a cluſter of rocks about 3 miles to the northward of the river's mouth; bringing them Weſt, you have a good birth in 6 or 7 fathoms, ſand and gravel, latitude obſerved in this road 7° 51′ North.

"The entrance of the river is very narrow; on the bar you have not leſs than 6 feet at low water; the tides riſe 2 feet perpendicular; high water on full and change N. W. and S. E.

"You may water at the iſland where the Dutch fort ſtands, and land your caſks at the wharf and roll them to the well on the green; it is neceſſary to carry funnels and buckets with gaſkets to them, to draw the water up.—Wood may be cut on the banks of the river near the bar in any quantity.—The Dutch governor will ſometimes ſupply you with a few bullocks; but if you ſhould find any difficulty in getting a ſufficient quantity, you may ſend to the town of Metecalao and purchaſe refreſhments there, which the inhabitants will ſupply you with, if you treat them civilly; they are Indians, and have very little communication with any other Europeans but the Dutch; however they ſeem deſirous of cultivating a friendſhip, and opening a commerce with the Engliſh, which the Dutch endeavour to prevent by every means in their power.

"The Dutch fort ſtands on an iſland, on the weſt ſide of the river, about 5 miles from the mouth; it is a ſmall ſquare work with 4 baſtions mounting about 44 guns 12 pounders, with a garriſon of about 50 Europeans and 100 Topaſſes."



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Two leagues off Batecalo, you meet with a rocky bank or reef, on which the ſoundings are very uneven; a ſmall ſhip may ſail between the land and the reef, but it is better to keep without. When the Friar's-Hood bears S. W. you may edge in towards the ſhore, and anchor againſt the river in 7 or 8 fathoms, a mile off the coaſt: ſeveral cocoa-trees ſcattered along the ſhore facilitate the knowledge of this part, from whence beſides the land trenches to N. W. by N.

Mr. *Nicholſon*, ſpeaking of this coaſt, ſays, "I have paſſed Batecalo ſeveral times in the day-time within 2 or 3 miles of it, and had 19, 20, and 22 fathoms water, and ſaw nothing of the reef that both the Engliſh and the French talk ſo much of. We kept our lead conſtantly going, and a good look out with fair weather and ſmooth water, but ſaw nothing of it." But all theſe are not ſufficient to ſhew the non-exiſtence of a reef 3 miles farther off, and to the eaſtward of the courſe followed; it proves only that you may ſafely ſail between the reef and the ſhore.

No regard ſhould be paid to the irregular ſoundings in this part of the coaſt of Ceylon; there are holes in ſeveral places, having from 18 to 20 fathoms, and ſuddenly to 60 or 70, ſometimes 100 fathoms, or perhaps no ground; and afterwards, in 2 or 3 caſts, near the coaſt, from 7 and 8 to 40, 30, 25, or 20 fathoms. When you range along this great iſland you muſt remind this difference, and not be more ſurpriſed at it than at the currents which ſet on or off the ſhore with little regularity. Ships bound to Point Pedro, or other places to the northward, ought from Batecalo to keep the coaſt cloſe on board, for if once they get off the land they cannot eaſily regain it. There about there is little or no current in ſhore, but a ſhip in the offing will find a ſtrong current ſetting to the N. N. E. which prevents her from fetching the coaſt again.

From Batecalo to Venloos the coaſt lies N. W. by N. diſtance about 9 leagues; the land between them is low and woody. Small veſſels may coaſt it in 10 or 12 fathoms, but great ſhips muſt keep out in 20 and 25 fathoms, 2 or 3 leagues off ſhore, this will carry them clear of all danger.

Venloos (Vendelos) is a ſmall bay on the north ſide of a ſteep rocky point of land; it may be known by a little mountain which lies a long way in land, and ſeems to be in the middle of the plain; this is called the *Sugar-loaf*, from its great reſemblance to the top of a ſugar-loaf broke off; ſouthward of it at ſome diſtance there are two other hills, farther in the country. When the ſugar-loaf bears W. $\frac{1}{2}$ S. you are abreaſt of Venloos Bay.

From Venloos Bay to Provedien Iſland the courſe is N. N. W. $\frac{1}{2}$ or $\frac{3}{4}$ W. $3\frac{1}{2}$ leagues; the land between them lies rounding in a bight, and the ground foul, which makes it bad anchoring: here the ſoundings are very irregular, and inſhore the bottom rocky; keeping it between 20 and 30 fathoms, with an offing off 2 or 3 leagues, carries you clear of all danger.

Providien Island is a white rock cloſe to the land, appearing at 3 or 4 miles diſtance like the ſail of a ſampan or country veſſel, ſo that it may be eaſily known; the coaſt is low and woody; to the ſeaward ſteep, and with rocks of an iron colour; it continues foul for 3 or 4 leagues farther to the northward. From this iſland to the S. E. point of the great bay

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bay of Trincomaley they reckon 7 or 8 leagues N. N. W. ¼ Weſt. The whole coaſt is low and woody, with a fine ſandy beach: by keeping in from 18 to 22 fathoms, 3 or 4 miles off ſhore, you have nothing to fear.

The ſouth-eaſt point of Trincomaley Bay is low, even, and woody; it is called FOUL-POINT after a dangerous rocky reef which from its extremity runs out N. N. E. above one mile; 3 or 4 leagues to the ſouthward of the point is good anchorage in 14 or 15 fathoms, and no danger if you go into 10 or 12, and thence to the point it is a clear ſandy bottom; but you muſt not come nearer the point than 14 or 15 fathoms; when Round Iſland is a ſail's breadth open to the ſouthward of Marble Point, (both within the bay) you are clear of all the dangers round Foul Point.

From Foul Point to the FLAG-STAFF Point at Trincomaley, the coaſt lies N. W. ½ W. diſtance 8 or 9 miles. You will carry ſoundings half that way from 15, 20, 30, 35, and 40 fathoms, then no ground until you come within a mile of the Flag-ſtaff Point, when you have 45 and 50 fathoms, and ſhoal gradually as you approach the ſhore.

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## DESCRIPTION OF THE
# GREAT BAY OF TRINCOMALEY,
## WITH SAILING INSTRUCTIONS, &c. FROM M. NICHELSON.

TRINCOMALEY (or *Trincoenmalé* and *Trinquemalé*) may be conſidered as one of the fineſt harbours in India; as it is entirely ſurrounded with the land, you lie there ſecured from all the winds that can blow; the bottom is clear, with good holding ground, and it is ſpacious enough to contain a 1000 ſhips, having beſides many convenient coves for careening, &c. There are alſo ſeveral watering places: the ſhips that take their water in Back Bay, fill it in the fort, where the Dutch have built a wooden pier to facilitate the landing; and thoſe who lie in the harbour muſt fill it at the well in the town, where they will have a quarter of a mile to roll their caſks.

Refreſhments for preſent uſe may be got here, but in ſmall quantities, and not more than ſufficient to ſupply two men of war; the only proviſions to be had are beef, buffalo, hogs, and a few fowls: little or no vegetables, and very dear; as for ſea-proviſions, there are none of any kind to be procured.

Although the ſituation of this port makes it a moſt convenient place for trade, yet ſcarce any is carried on at Trincomaley, and there are no ſhips belonging to the place. The Dutch European ſhips call here in the months of July or Auguſt, tranſact their buſineſs, and as they generally lie in the back bay, they depart before the beginning of the N. E. Monſoon.

The latitude of Flag-Staff Point, by ſeveral obſervations, is 8° 32′ North*; it flows

* Its longitude Eaſt from London is 81° 17′ according to M. *D'Après*, 81° 40′ according to Mr. *Nicholſon*, and 81° 51′ according to Mr. *Dalrymple*.

here

here on the full and change, Eaſt and Weſt, or 6 hours, the perpendicular riſe being 3 feet; the tide has little motion, but on the ſouth ſide of the bay, where it runs at ſpring-tides, the ebb 1½ knot to the eaſtward, and the flood a knot to the weſtward; the flood 4 hours and the ebb 8 hours.

The neighbouring land is very remarkable, riſing very high all round the harbour, and in no other part near it, either to the northward or the ſouthward. To the South of that high land ſurrounding the harbour, is the great bay of Trincomaley which extends 6 or 7 miles North and South, and 7 or 8 from Eaſt to Weſt. It is very deep all over, and has no ſoundings but on the ſouth ſhore, which is all low land, and where 4 ſmall rivers have their openings, but all of them navigable for ſmall boats.

Flag-Staff Point appears the more conſpicuous in being very high, ſteep, and covered with trees; it is narrow, and projects into the ſea about ¼ of a mile, where it is cut off abruptly in a perpendicular; at the foot, and cloſe to it there is a rock about the height of a ſhip's hull. On the top of this point the Dutch have a look-out houſe, whereon they hoiſt their flag when they deſcry any ſhips in the offing. There is alſo on the middle of the point a very large and remarkable tree, which, when in one with Chapel Point, is a mark for clearing the ſhoal to the S. W. of Norway Iſland.

To the northward of Flag-Staff Point, between it and Elizabeth Point, there is a ſpacious and ſafe bay, with a ſmooth ſandy beach, and good landing every where; it is called BACK BAY: in the S. W. Monſoon ſhips lie there on a ſandy bottom, with gradual ſoundings towards the ſhore: you may anchor any where in 7, 12, or 15 fathoms, from ¼ or ½ a mile off ſhore; Flag-Staff Point bearing from S. E. by S. to S. by E.; here is plenty of water and wood.

The firſt danger to be guarded againſt, in entering the bay, when you come from the ſouthward, is foul Point, which has been deſcribed in the preceding ſection; we have ſaid that when *Round-Iſland* is a ſail's breadth open to the ſouthward of *Marble Point* you were clear of all danger; Marble Point will then bear W. by S. ½ S. with theſe marks you may run up the bay, until you open the harbour's mouth, but you have no ſoundings in this track after you are to the weſtward of *Norway Iſland*.

The courſe into the harbour is N. W. by N. keeping mid-way between Round Iſland and *Elephant Iſland*, where you ſtill have no ſoundings.

Come not near the weſt point of Elephant Iſland, for about a cable's length N. W. by W. from it there are ſome dangerous rocks, with only 6 feet water on them; to ſail clear of theſe, you muſt keep the white houſe that ſtands on the top of *Oſnaburg Point*, 2 ſails' breadth open of Elephant fort Point. The harbour's mouth is very narrow, being not more than two cables' length over, with 30 fathoms in the middle between both points; theſe are ſteep-to, ſo that you may go within a ſhip's length of either, and run boldly in, as there is no danger but what is viſible.

When you have paſſed the narrow entrance, you come into a fine ſpacious harbour, where ſhips lie ſheltered from all winds; the bottom is clear, with good holding ground; but right in the middle of this harbour lies a dangerous ſhoal called *York Shoal*, on which there is not



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above 5 feet water; to avoid it you muſt keep Round Iſland a ſail's breadth open with Oſnaburg Point until the flag-ſtaff on Flag-Staff Point is brought upon the gap of the wood at the town; then you are clear of it, and may run up towards the town, to anchor where you pleaſe, and in what depth you chooſe from 17 to 8 fathoms.

## DIRECTIONS FOR SAILING INTO TRINCOMALEY HARBOUR,

### WHEN YOU COME FROM THE NORTHWARD.

YOU may paſs by Pigeon Iſland, within $1\frac{1}{2}$, or 2 miles, in 21, 22, or 24 fathoms. What is called *Pigeon Iſland* is a cluſter of rocks above and under water, the outermoſt of which is the largeſt and the higheſt, and has ſeveral green trees and ſhrubs; between it and the main there is no paſſage, on account of the rocks both above and under water; $1\frac{1}{2}$ mile from the iſland you have 22 fathoms, and coming towards it 21, 19, 17, 16, ſoft ground, within $\frac{1}{2}$ a mile of it. This iſland bears from Flag-ſtaff Point N. by W. $\frac{3}{4}$ W., 12 or 13 miles; when you have 36 or 38 fathoms off Pigeon Iſland, you are juſt at the edge of the bank, and the next caſt may be 40 or 42 fathoms, perhaps no ground; if it happens to be calm, and the current ſhould prove againſt you, take care to anchor, rather than be ſet off the bank.

Leaving Pigeon Iſland you may range it along as far as Elizabeth Point, though the ſoundings are a little irregular between them: but obſerve that in this courſe, about $5\frac{1}{2}$ miles S. S. E. $\frac{1}{2}$ E. from the middle of Pigeon Iſland; 4 miles N. E. by N. from the Lively Rocks, and 8 or 9 miles N. $\frac{3}{4}$ W. from Flag-Staff Point, lies the DIOMEDES ROCK, lately diſcovered by the King's ſhip of that name. The ſoundings of the rock, when the ſhip was on it, were $3\frac{1}{2}$ fathoms abaft, and 16 feet forward; the entire length not more than 27 fathoms, the width about 16. Round it the depths are 9, 10, and 11 fathoms. After the ſhip had got off the rock, ſhe had from 10 to 7 and 8 fathoms about $1\frac{1}{2}$ mile from it S. W. by S. where ſhe anchored; then on a S. E. courſe, $6\frac{1}{2}$, 7, 8, 9, 10, 12, and 16 fathoms abreaſt of the Lively Rocks, $2\frac{1}{2}$ miles diſtant Weſt.

*Elizabeth Point* is the north point of Trincomaley Back-Bay, off which, $\frac{1}{4}$ of a mile from ſhore, two rocks are ſeen above water, about the bigneſs of a boat, with about 8 fathoms cloſe to them; and thence to ſeaward, run out the *Lively Rocks* under water for $\frac{1}{4}$ of a mile, having 7 or 8 fathoms near their edge, both to the northward and ſouthward: therefore you muſt come no nearer theſe rocks than 12 or 13 fathoms, nor approach the ſhore to the northward of them nearer than 18 or 17, the bottom being foul, and the depth very irregular. Theſe rocks bear from the outer part of Pigeon Iſland S. by E. $\frac{1}{2}$ E. 9 or 10 miles, and from Flag-Staff Point N. by W. $\frac{1}{4}$ W. 3 or 4 miles. If you keep *Chapel Point* juſt open with Flag-ſtaff Point, it will bear South a little weſterly, and this mark will carry you clear of all danger, from theſe rocks in 12 and 13 fathoms water. But if you keep out in 25 or 30, between them and Flag-Staff Point you will ſoon loſe ſoundings, for they extend only 2 miles from the coaſt, and not above $\frac{3}{4}$ of a mile off Flag-Staff Point.

Between this point and Chapel Point there are ſeveral rocks above water, and pretty ſteep to,

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to, which run out ſome diſtance into the ſea, and a good quarter of a mile off Chapel Point you meet with another rock above water, about the bigneſs of a ſmall boat, from which a rocky reef, under water, ſtretches to ſeaward a large cable's length: however the white mark on the inſide of Elizabeth Point, kept a ſail's breadth open with Flag-Staff Point, carries you clear of all danger, in 18, 20, or 22 fathoms.

Being paſt the rock and reef off Chapel Point, you may ſteer up the bay; and keeping Marble Point open to the northward of Round Iſland, until you open the harbour's mouth, it carries you perfectly ſafe, but you will have no ſoundings: then keep midway between Round Iſland and Elephant Iſland, and ſteer in for the harbour's mouth N. W. by W. conforming yourſelf to the directions already given for coming in from the ſouthward.

## MARKS FOR TURNING INTO TRINCOMALEY HARBOUR.

A SHIP off Foul Point, ſtanding to the northward with the wind weſterly, may borrow on the back of Foul Point ſhoal into 14 or 15 fathoms; and when Marble Point is open to the northward of Round Iſland, ſhe may keep up for Flag-Staff Point if the wind will let her; for at a conſiderable ſpace between the two points, no ground is found; though you have gradual ſoundings for 1 or $1\frac{1}{2}$ mile to the northward of Foul Point, from 4 to 36 fathoms, on the edge of the bank, when Flag-Staff Point is bearing W. $\frac{1}{2}$ N. and Foul Point S. $\frac{3}{4}$ E. and the next caſt no ground. Therefore the beſt way to get into the harbour with the wind off ſhore, is to work up under Flag-Staff Point, and to its northward, taking care not to ſtand to the ſouthward of it ſo as to open the great bay, until you can paſs Chapel Point reef; and that on account of the ſtrong outſet which generally accompanies the weſterly winds. In ſtanding to the northward there is nothing to fear but what you ſee. Between the rocks off Elizabeth Point and Flag-Staff Point, you may come into 8 or 7 fathoms, the bottom being clear and ſandy, with gradual ſoundings from 20 to 7 fathoms. When you tack, and ſtand to the ſouthward, keep as cloſe as poſſible to Flag-Staff Point, and borrow as near the rock and reef off Chapel Point as you can, conforming yourſelf to the marks already mentioned.

Towards the ſouth ſhore you are not to ſtand in with leſs than 20 fathoms, as it is all rocky and bad ground between *Foul Point* and *Norway Iſland*, with very irregular ſoundings, decreaſing 4, 5, or 6 fathoms at a caſt; and about half way lies a very dangerous rock, with only 8 feet water on it; it is called the *Northeſk Rock* from a ſtore ſhip of that name, loſt there in 1748, and its marks are Flag-Staff Point N. 35° W. a hill in the country, and Marble Point touching W. 10° S. *Norway Iſland* S. 33° W. Foul Point E. 10° N. You have 8 and 9 fathoms all round this rock, and 15 or 18 a little way without it. In ſhort it is not adviſable to ſtand farther to the ſouthward, until you get well to the weſtward of Norway Iſland, than juſt to bring Round Iſland on, or touching Marble Point. With theſe bearings your ſoundings will be from 18 to 20, 22, and 24 fathoms, all the way between Foul Point and Norway Iſland, and 13, 14, or 15, when abreaſt of the latter.



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Between the rocks off Chapel Point and Elephant Iſland, it is ſo ſteep to that you loſe ſoundings all at once. When you tack and ſtand again to the ſouthward, be careful how you approach Norway Iſland, which is encompaſſed with rocks above and under water, and attend to the marks above given for keeping clear of the dangers on its north ſide.

When you have weathered Norway Iſland, in ſtanding farther to the ſouthward of the great-bay, you are to take care of a large flat *Sand-Bank*, on which there are only 3, $3\frac{1}{4}$, and $3\frac{1}{2}$ fathoms; the marks to clear it are to keep the great tree that ſtands on the middle of Flag-Staff Point, on with Chapel Point, or juſt touching it, and to bring Pigeon's Iſland in one with the ſmall iſland in the mouth of the lake, called *Bird's Iſland*. In the ſouthward of the Great-Bay, no ſoundings are to be got but within a mile of the ſhore; however you muſt keep the lead going, for it ſhoals very ſuddenly; you may have 35 or 40 fathoms the firſt caſt, 18 or 20 the next, and 10 or 12 the third; this is the leaſt depth you ought to go into with a great ſhip, as in many places there is not above 2 cables' length from 10 to 4 fathoms.

The moſt gradual ſoundings on the ſouth ſide of the bay are off the *River Cotiar*, and you may anchor there in 10 or 12 fathoms, ſoft muddy bottom, and good holding ground; the river's mouth bearing S. by E. about $\frac{1}{4}$ of a mile; it is very ſmooth lying in, during the S. W. Monſoon. Small ſhips may anchor in 7, 8, or 9 fathoms, any where along ſhore between Cotiar River, and Sambor or the eaſternmoſt river, in good ground, mud, and ſmooth water.

## THE EASTERN COAST OF CEYLON,

### FROM FLAG-STAFF POINT TO POINT PEDRO.

BEING 3 or 4 miles to the eaſtward of Flag-Staff Point, a N. N. W. courſe will carry you clear of PIGEON ISLAND, juſt now deſcribed, which you may paſs 2 or 3 leagues off in 22 fathoms; from Pigeon Iſland to *River Cruz* the diſtance is 4 miles: from this river to *Rio Carti*, or *Cardies*, the courſe is N. W. about 4 leagues, the coaſt being low and even, with anchorage 4 miles off ſhore in 16, 18, or 20 fathoms.

From Rio Carty to *Molodiva*, or the MOLEWAL of the Charts, the diſtance is about $5\frac{3}{4}$ leagues to the N. W. you may anchor between the two places in very good holding ground.

From Molewal a ſhoal extends 3 leagues into the ſea, which you muſt not approach nearer than 9 or 10 fathoms; but as it is very ſteep-to, you ought to keep 4 leagues from the ſhore in 11 and 12 fathoms, coral; when you are almoſt beyond this danger, the bottom is ſand and ſhells, mixed with gravel and coral; and 5 leagues off ſhore, ſand, with a few ſhells. Having doubled the ſhoal, you muſt, in order to fetch Point Pedro, haul in for the coaſt, where there is nothing to fear, ſo long as you continue in 6 fathoms, ſandy ground; but you are to take a greater offing as you near the point, which is ſurrounded with dangers.

From Pigeon's Iſland to clear Molewal ſhoal, the courſe, ſays Mr. *Nicholſon*, is N. N. W.

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10 or 11 leagues, taking care to keep in from 18 to 20, 22 or 24 fathoms. Having run that diſtance, and being in thoſe ſoundings, you may then ſteer N. N. W. ½ W. or N. W. by N. 14 or 15 leagues, according as you find the depth of water, which muſt not be leſs than 20 fathoms.

Between Molewal and Point Pedro they reckon 14 leagues N. W., and N. W. by N. you may coaſt it in the manner heretofore preſcribed, in order to avoid a rock under water with only 9 feet, and a bank off the ſhore on which are very unequal ſoundings: the rock bears from Point Pedro E. by N. 2½ or 3 leagues.

In ſailing from the ſouthward, if you meet with contrary winds, ſo that you cannot coaſt it at the proper diſtance, you had better ſail without the bank and rock. Keep 4 leagues offing in 9 or 10 fathoms, until POINT PEDRO bears W. S. W. then ſtand to the weſtward, but nothing to the ſouthward, till that point is bearing S. W. otherwiſe you have unequal ſoundings that decreaſe ſometimes 2 fathoms at a caſt, inſtead of which you will find no leſs than 4½ or 5, by conforming to this direction. However, if by neglect you find yourſelf in 4 fathoms, ſand and rocks, you muſt then haul off, until the ſoundings are ſand mixed with ſhells and coral, in 5½ or 6 fathoms.

When Point Pedro bears S. by E. 4½ leagues off, you may anchor there in 4½ fathoms, fine ſand; but when it is bearing S. by W. if you would approach the coaſt, and be obliged to turn it, to avoid all danger, take care in ſtanding off not to bring it more ſoutherly than S. S. W.

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## PALK'S BAY, OR THE GULF,

### BETWEEN THE NORTH-WEST PART OF CEYLON AND INDIA.

From the Dutch Deſcription.

FROM Point Pedro, the northernmoſt extremity of Ceylon in 9° 48′ latitude North, to Point Calymere, on the continent of India, the diſtance is about 15 leagues N. W. ½ N. this makes the entrance of the gulf or bay known by the name of Governor PALK, and which extends to the ſouthward as far as Adam's Bridge.

There are three openings into that entrance: the firſt, called *Baker's Channel*, is about 5 and 6 miles broad, N. E. by N. and S. W. by S. between Calymere Bank and another to the ſouthward of it, called Middle Bank; its depth 4½ fathoms, ſand: on the edge of the banks you find only 3½, which on the Calymere ſide are gradually decreaſing towards the land, in a ſpace of 3 leagues, to 3, 2, 1, and ½ fathoms. The ſecond opening, called *Kelſal's Channel*, lies to the ſouth-eaſtward of the middle-bank, in a N. E. and S. W. direction; it has 4½ and 4 fathoms water, and its width is about 3 miles.

The third opening, which is named *Palk's Straits*, is about 6 leagues broad, from the ſand bank ſouthward of Kelſal's Channel, to the neareſt part of Ceylon; the leaſt water, in the middle part of it, is 4 fathoms, fine ſand. We muſt obſerve that Palk's Bay is very ſhallow all

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all over, the ſoundings running generally from 6 to 7 fathoms, which are gradually decreaſing to 5, 4, 3, and 2 fathoms towards the Indian ſhore.

Without the bay on its north ſide, and round Point Calymere, is CALYMERE REEF, which extends between 4 and 5 leagues to the eaſtward. On this reef the ſoundings are from 4½ to 3 fathoms, and in ſome ſpots, at the entrance of Baker's Channel, only 2½; on the eaſtern edge you have from 5½ to 6 and 7 fathoms, ſand or mud.

POINT PEDRO is a very low land covered with ſhrubs and buſhes, and running into the ſea in ſuch a manner that at ſome diſtance it appears like the wrecks of old ſhips in the water; its north part is known by a church and ſome houſes, the land trenching to the weſtward.

From Point Pedro, to *Hamenhiel Fort*, on the oppoſite ſide of Ceylon, the courſe is W. by S. and W. S. W. 8 or 9 leagues; this fort ſtands on a very ſmall iſland in the middle of the larger iſlands which lie near the weſternmoſt coaſt of Ceylon. When you are about 20 miles from Point Pedro, you perceive *Valy Point*, to which you muſt give a birth of 9 or 10 miles, on account of a bank with only 3 fathoms upon it, ſo that the north-weſt point muſt be paſſed before you can perceive Hamenhiel Fort; and when this point bears S. E. by E. then the iſland is bearing S. by W. and S. S. W. from whence you are to ſteer towards it to 4 and 4½ fathoms, bringing the fort S. by E. to anchor there. In May, June, and July, the S. S. W. winds are very violent in theſe parts, and the tides very ſtrong.

From Hamenhiel to *Jafanapatam* the diſtance is 5 leagues to the eaſtward; but the channel having but 4 feet water in ſome places, is only frequented by the country boats.

From Jafanapatam to *Calimony Point* the courſe is E. S. E. 3 leagues, with a depth of 12 or 13 feet water: near the point there is a rock with only 3½ feet upon it, which you paſs at a ſhip's length: the anchorage at Calimony is in 3½ fathoms, 2 miles off ſhore.

Three leagues to S. W. by S. of Calimony lies *Polan-diva*, called alſo *Enchuyſen* and *Cat-Iſland*; the fair way is in 5 or 6 fathoms, fine ſand; and the iſland has a ſand-bank which ſtretches one mile into the ſea.

From Cat-Iſland to the iſlands called the *Brothers*, the diſtance is about 5 miles S. S. W.: you are not to approach the Brothers nearer than 2 miles, on account of a rocky reef that ſtretches to the weſtward.

MANAR ISLAND lies 20 miles to the ſouthward of the Brothers. In the fair way, near the Brothers, you have 5 and 6 fathoms, but the depth decreaſes very much near Manar, and when you approach it, you deſcry a church which the Portugueſe called *Madre de Deos*; this church bearing S. W. you may come as near as you can, and will have 10 or 12 feet water at a cannon-ſhot from ſhore.

From the weſternmoſt point of Manar to RAMANANCOR Iſland, the diſtance is about 12½ leagues W. by N. the courſe is firſt N. W. by N. 20 miles, to come into 6 fathoms, ooze; then ſteering to coaſt along Ramanancor, you find 7 fathoms; when you are come to the north-eaſt point of this iſland you muſt keep the lead conſtantly going, for as ſoon as you have got into 5 fathoms, the depth decreaſes ¼ a fathom at each caſt.

From this north-eaſt point to *Catche diva*, or *Chagodina* Iſland, the courſe is E. N. E. 4½ leagues

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4½ leagues; and from the ſame point to Cow Iſland they reckon 9 leagues, on the ſame rhumb; in the fair way you have 6 or 7 fathoms. *Cow Iſland*, named alſo *Delft Iſland*, the weſternmoſt of the iſlands on the north-weſt end of Ceylon, is about 7 miles long, with a reef at its weſt point, and lies 10 or 11 miles S. W. by S. from Hamenhiel Fort.

From this fort to *Devypatam*, on the oppoſite ſide of the bay, the courſe is S. W. by S. nearly 26 or 27 leagues; at about 6½ leagues from the fort you meet with a ſand bank having only 9 or 10 feet water upon it; in approaching the coaſt frequent recourſe muſt be had to your lead, as the depth is only 2½ and 2 fathoms, 5 or 6 miles from ſhore.

From Hamenhiel Fort to Calymere Reef, the courſe is N. N. E. about 12 leagues; you muſt not approach the reef, nor Point Calymere, nearer than 5 fathoms; beyond the point you may range along ſhore in 4 or 5 fathoms, there being no danger; when the pagoda which ſtands on that point is bearing W. S. W. and S. W. you have from 4½ to 5 fathoms, and at 5 large leagues to the N. E. 14 and 15 fathoms.

## THE COAST OF COROMANDEL.

### DESCRIPTION OF THE COAST FROM POINT CALYMERE TO PONDICHERRY.

NEGAPATAM AND SHOAL—KARICAL—TRANQUEBAR—PORTO NOVO, &c.

FROM Point Pedro to Point Calymere, where the Coaſt of Coromandel begins, the diſtance, as we have already obſerved, is about 15 leagues N. W. ½ N. and round the latter point lies Calymere reef, deſcribed in the preceding article. The ſafe courſe towards Point Calymere is N. N. W. on account of the reef, and the depth is all along 9 or 10 fathoms.

The ſhips, ſays M. *D'Après*, who, after coaſting the Iſle of Ceylon, croſs from Molewal, or from Point Pedro to the Coaſt of Coromandel, almoſt always make the land ſooner than they reckon, becauſe the current ſets to the N. N. W. very ſtrong, and carry them into Palk's Bay; ſo that many navigators who, to get ſight of the coaſt, directed their courſe to the northward of Tranquebar, have made the land to the ſouthward of Negapatam; and ſeveral have run aſhore in the night for want of taking ſoundings. We own that the contrary has happened to ſome, that is to ſay, they have been ſet to the eaſtward, but theſe examples are not frequent, whereas the others are very common.

In croſſing from Ceylon to the Coaſt of Coromandel, Mr. *Nichelſon* recommends to keep well to the weſtward, and to make the land about Negapatam, on account of the weſterly winds and of the ſtrong northerly currents: the firſt blowing very ſtrong off this land in the S. W. Monſoons, prevent ſhips from making the coaſt; and the currents will frequently horſe a ſhip to the northward in a ſurpriſing manner: he adds that many ſhips,

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by not obſerving this precaution, have been driven to the northward of the port to which they were bound.

Being abreaſt of Point Pedro, in 20 or 24 fathoms, you will ſoon deepen your water to 28, 30, 35, 40, and 50 fathoms, and then no ground; when you are come into the depth of 30 or 35, you may haul up N. W. or N. W. by W. in order to get hold of the Indian ſhore about Negapatam, and near midway you will loſe ſoundings. The courſe is N. 42° W. 25 or 27 leagues.

On POINT CALYMERE ſtands a pagoda which may be ſeen 4 or 5 leagues off in clear weather; $\frac{3}{4}$ of a mile to the northward of it is a little river, and on its bank a large village ſurrounded with trees, where a trade is carried on in tobacco and rice. The mouth of this river does not appear at a diſtance, and its bar has but 3 feet water, ſo that only very ſmall veſſels can go into it. You anchor about a league from its entrance, with the pagoda S. W. by W. the ground to the northward being very ſoft mud, and not fit to anchor in.

From Calymere to Negapatam the courſe is North about 6 leagues; between the two you perceive a thick wood with ſmall buſhes without number. There is nothing elſe remarkable but a church, about a league to the ſouthward of Negapatam, that is built on the ſide of a ſmall river which is not ſeen in coaſting along, and as there are not above 4 feet on the bar, we ſhall take no farther notice of it.

NEGAPATAM was before the late war the moſt conſiderable place poſſeſſed by the Dutch on the coaſt of Coromandel; the Engliſh took it in November 1781, and it was ceded to Great-Britain by the laſt treaty of peace. It had a conſiderable trade, though very few veſſels did belong to the place. Its fortifications are good, and the citadel is a regular pentagon, with wet ditches. The town lies to the northward of the citadel, near which is the mouth of a little river, capable of receiving ſmall country veſſels; it has a north and ſouth entrance, the land between them being an iſland; the boats uſe the windward entrance to come out, and the leeward one to return, according to the Monſoon. On the north ſide of this river is a ſtrong battery to which boats entering muſt go within the length of their oars, and the landing place is cloſe to it: there is a bar at the mouth of the river, which, in bad weather, breaks very much, and becomes dangerous.

The watering place is about $\frac{1}{2}$ a mile up the river, at a great tank entirely commanded by the citadel; the watering there would be both troubleſome and tedious without the aſſiſtance of the natives and their boats. Freſh proviſions for preſent uſe may be had at Negapatam, with vegetables, fruits, &c. ſufficient to ſupply a ſquadron of men of war; but no kind of ſea proviſion except rice; and fire-wood is a ſcarce article.

To the northward of the town is a great black pagoda, called *China Pagoda*, on which is erected a flag-ſtaff; this is the firſt object to be ſeen on this part of the coaſt, which is very low, with many drowned lands, ſo that it muſt not be ranged along nearer than at leaſt 7 miles, as you are apt to miſtake them for the ſea ſhore. The flag on the China Pagoda can be well deſcried from the deck, at 6 leagues diſtance in 14 or 13 fathoms, bearing W. N. W. You anchor abreaſt of Negapatam in 6 or 7 fathoms, clear and good holding ground, the

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the flag-ſtaff bearing W. $\frac{1}{2}$ S. and the higheſt of the 4 pagodas to the northward N. W. $\frac{1}{4}$ N. off ſhore $2\frac{1}{2}$ or 3 miles.

To the ſouth-eaſtward of the town is the NEGAPATAM SHOAL, which, according to the ſurvey made by the maſters of his Majeſty's* ſquadron 3d of Auguſt 1781, extends above 5 miles in length N. by E. and S. by W. nearly, and not one mile in width; the general depth on the edge is from 18 and 19 feet to 21, 24, and in ſeveral places 30 feet, ſand, and towards the north part, hard ſand: from its ſouth end to the ſhore, it is about $4\frac{1}{2}$ miles, with a depth of water from 3 to $3\frac{1}{2}$ fathoms in mid-channel, then 4, $4\frac{1}{2}$ and 5 cloſe to the ſhoal: the diſtance between the north end and the coaſt is 5 or 6 miles, with 3, $\frac{1}{4}$ leſs than 3 fathoms near mid-channel, 4 and 5 cloſe to the ſhoal. The north part of it bears S. S. W. ſoutherly, from Negapatam, diſtant 8 miles; from the Tree on the ſand-hill 6 miles to the ſouthward of Negapatam, the north part bears Eaſt, and the ſouth part S. E. $\frac{1}{2}$ E.

There is leſs current off this part than on any other of the Coaſt of Coromandel; it generally goes with the wind, and increaſes as you ſtand to the northward.

From Negapatam to Karical the diſtance is about $3\frac{1}{4}$ leagues, the courſe N. 5° W. in coaſting you keep in 6 or 7 fathoms. Between the two runs the River Naghor, wherein a trade is carried on in chintz and rice; the moſque with 4 white pyramids, which may be ſeen very far off at ſea, renders this place very remarkable.

KARICAL is a ſettlement of the French, which, with the places depending on it (the moſt important of which is *Teroo-maley-zayen*, 4 miles to the ſouthward) was granted to them by the King of Tanjore in 1739. It carries on a great linen trade. Two rivers, both navigable branches of the Cavery, bend their courſe through this diſtrict, and fertilize the country, which abounds in rice and other proviſions.

The fort of Karical is built on the northernmoſt ſide of a river, whoſe mouth is formed by a narrow point of ſand, which extends along the coaſt, ſo that its entrance being parallel with it, cannot be diſtinguiſhed far off. The other river, called Coluncherry, is $\frac{1}{4}$ of a league to the ſouthward; and that of Tiroomaley, half a league farther South, opens likewiſe towards the North, as indeed do almoſt all the rivers on this coaſt. The bar which ſhuts up thoſe of Karical and Tiroomaley hinders middling ſhips from entering, ſo that only boats and chillingas can paſs them; and then it muſt be at high water. You anchor before Karical in 5 or 6 fathoms, and the marks for anchoring vary according to the Monſoon. In the ſoutherly Monſoon you bring the flag-ſtaff to bear W. S. W. In the northern it is to be brought to bear Weſt: by this means the paſſage becomes eaſier to the boats going and coming.

From Karical to Tranquebar the diſtance is $1\frac{1}{2}$ league N. 4° W. You keep along ſhore in 6 or 7 fathoms, but in approaching the fort of Tranquebar, you muſt ſtand off a little more on account of a bank near the river; this bank does not project much, and provided you keep always in the above depth you have nothing to fear.

* The *Exeter*, *Burford*, *Superb*, *Eagle*, and *Worceſter*.



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TRANQUEBAR, or *Trankbar*, is the chief ſettlement belonging to the Danes in India; the Town called Daneborg is very neat, and the fort, remarkable by its extraordinary whiteneſs, which they take care to keep ſo, is ſeen at a great diſtance. The Indians call this place *Tarangam-paddoo*, whence is corruptly derived the name of Tranquebar.

Two leagues and a half to the northward of Tranquebar is *Caverypatam*, at the mouth of the river called New Cavery, with a kind of fortreſs without baſtions; and juſt by ſtand two ſmall pagodas very near the ſhore.

The ſmall river of *Tiroomaley Waſhil* is 2 leagues North of Caverypatam; it takes its name from a pagoda that is ſeen inland; off its mouth there is a bank about a mile diſtant, but which is not dangerous, as the depth gradually decreaſes as you approach it. The land to the northward of the river is ſomewhat higher than the reſt of the coaſt, which from the Calymere Pagoda, is only perceived as it were by its trees and buildings. In coaſting about a league off ſhore, you have 9 and 10 fathoms water.

They reckon $3\frac{1}{2}$ leagues from the latter river to that of COLEROON, named by the Indians *Kolram*, at the mouth of which is a ſmall iſland with the fort of DEVICOTTA, belonging to the Engliſh. This mouth is known by a thick level wood near the ſea ſhore, it is called *Coleroon Wood*, and at ſome diſtance at ſea it appears like a low iſland, whoſe greateſt heigth is in the middle. In this part are to be ſeen up in the country four remarkable buildings, which are the four famous pagodas known by the name of SHALAMBRON or *Chalambaram*; when they appear juſt touching the ſouth part of Coleroon Wood they bear W. $\frac{1}{4}$ N. and you have 25 fathoms 3 leagues off the ſhore; when on the middle of the wood, they are then bearing due Weſt; but if you be well inſhore they will not be ſeen on account of the wood, until you open them to the northward, when they will bear W. by S. $\frac{1}{2}$ S.

The ſouth ſide of the entrance of Coleroon River ſeems to make a point, eſpecially when you come from the ſouthward and ſail near it, becauſe the coaſt, whoſe direction was hitherto North, forms an elbow and extends $3\frac{1}{2}$ leagues to the N. N. W. as far as Porto-Novo. The land is low and even, and has nothing remarkable but the buildings above mentioned.

To bring under a general view the detail we have now given of this part of the coaſt, it might be obſerved that between Negapatam and Coleroon River, the coaſt lies North and South nearly, in a diſtance of about 14 leagues; that it is low, woody, and all the way free from danger, until you come near the Coleroon, with regular ſoundings as you approach the ſhore: when you are 6 or 7 leagues off the land there are none to be got without 45 and 50 fathoms, as beyond that depth the bank goes off ſuddenly to no ſoundings. In 40 fathoms you will be about 5 leagues off the coaſt, towards which it ſhoals gradually to 10 or 11, about 3, 4, or 5 miles from ſhore. You may coaſt it all the way in that depth, with an offing of about 2 leagues, till you come to the Coleroon.

At the mouth of the Coleroon a ſhoal extends $4\frac{1}{2}$ or 5 miles from the land, and ſtretching along to the ſouthward, joins with the ſhore about the ſouth part of Coleroon Wood: this is called COLEROON SHOAL, a great part of which is dry, and generally with very high

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high breakers; it is ſo ſteep that from 11 or 12 fathoms you will in ſome places fall ſuddenly into 3 and 4, and a great ſhip ought not to come nearer this dangerous reef than 16 or 15 fathoms in the night, and 14 or 13 in the day. The King's ſhip *Falmouth*, Captain *Brereton*, narrowly eſcaped being loſt on the Coleroon Shoal in the night; they were ſtanding for it, with intention to tack in 12 fathoms, but miſſing ſtays, they found themſelves in 4½ before they could put about, and were obliged to anchor: in the morning, the weather being moderate, they warped off and come to ſail.

Porto-Novo, called by the Indians *Paranguipetta*, and by the Moors *Mahmoud-bunder*, was formerly a place of great trade, where the French and the Dutch had factories; here is a little river navigable only for ſmall country veſſels; freſh water is filled out of a tank, a little way up this river, but it is bad, brackiſh, and apt to give the flux. The road of Porto-Novo being ſheltered by the Coleroon Shoal to the ſouth-eaſtward, from the great ſwell you find in every other part of the coaſt, is by much the ſmootheſt and ſafeſt on the Coromandel ſhore; there is ſcarce any current, the bottom is clear, muddy, and good holding ground; you may anchor there in 6 fathoms water; the flag-ſtaff at Porto-Novo W. ½ N. and the ſouthernmoſt of the 4 Shalambron Pagodas S. W. ¾ W. off ſhore 2 miles.

In July, ſooner or later, from Tiroomaley Waſhil to Porto Novo W. ½ N. the waters are thick and muddy, like thoſe of an inundation; it appears the more ſurpriſing, as it ſeldom rains on the Coaſt of Coromandel at that time of the year, but this foul water proceeds from the river Cavery, which comes down from the mountains of the Gauts on the Coaſt of Malabar, where the rains are then very frequent.

From Porto Novo to Fort St. David, belonging to the Engliſh, but now in ruins, the coaſt lies N. by E. 6½ leagues; you may coaſt it along in 8, 9, or 10 fathoms, about a league off ſhore; a little to the northward of Porto Novo begins the white ſand-hills, which extend along the coaſt, and have at that diſtance the appearance of ſo many iſlands.

*Fort St. David* was ſituated on the edge of the coaſt, and a ſmall bank lies about half a mile or more from it; a quarter of a league to the ſouthward you ſee the town of Cuddalore, whoſe ſhallow river and bar boats only can enter: you anchor there in 6½ fathoms, clear and good holding ground; Cuddalore bar W. S. W. the flag-ſtaff N. W. ¾ N. the ruins of Fort St. David N. N. W. ½ W. off ſhore 1½ mile; the current ſetting to the northward at the rate of a mile *per* hour, as it always does off this place in the S. W. Monſoon: you may be ſupplied here with vegetables, fruits, and plenty of freſh proviſions.

From Fort St. David to Pondicherry the coaſt lies N. N. E. eaſterly 14 miles; you can range it along in 10, 12, or 14 fathoms, 4, 5, or 6 leagues off ſhore, and without that no ſoundings. There is nothing remarkable between the two places; the land is low and ſandy to ſeaward, and woody towards the country.



DESCRIPTION

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## DESCRIPTION OF THE COAST FROM PONDICHERRY TO MADRAS.

### ALLEMPARVA—SADRAS—COVELONG—MADRAS.

IN ſailing from the ſouthward you ſee the town of PONDICHERRY, at the foot of a black land, a little higher than the reſt of the coaſt; this black land, about 3 leagues in length, on a flat hill to the N. W. of the town, is diſtinguiſhed by a tuft of trees. The town is built along ſhore, affording a moſt delightful proſpect from the ſea; it is the chief of the French ſettlements in India, the reſidence of the governor general, and ſuperior council, and before its fortifications and public buildings were deſtroyed by the Engliſh, during the 7 years war, Pondicherry was by much the largeſt, ſtrongeſt, and moſt beautiful European ſettlement in the Eaſt Indies. Its latitude is 11° 55′ 42″ North, and its longitude Eaſt of London, by repeated obſervations, 79° 56′ 30″. When on with the middle of Pondicherry, bearing W. ½ N. 2½ or 3 leagues, you have 15 fathoms, and bearing W. by N. 5 leagues, you have 38; there are no ſoundings without 40 or 42 fathoms, the bank there going off very ſuddenly.

Pondicherry, like all other places on this coaſt, has two roads. The *Little Road*, where ſhips anchor during the fair weather, that is to ſay, from the beginning of January to the beginning of October, and from the middle of May to the firſt of October; the generality of navigators are of opinion that you may remain in this road until the 10th of the latter month, but experience has proved that it is adviſeable to leave it in the firſt days of October. You are lying in this road in 7 or 8 fathoms, to the Eaſt or S. E. of the town, at 1000 toiſes, or very little above a ſea-mile, from ſhore. The *Great Road* is that where ſhip's anchor during the bad weather; you lie there in 14 or 15 fathoms, and the general reckoning places it at 2½ leagues at leaſt from ſhore, whereas the trigonometrical operations of *M. Le Gentil* in 1769*, make the true diſtance only 3557 toiſes, or about 1½ nautic league, which enormous difference ought to be attended to by navigators. The bottom in both roads is clear, and good holding ground. To the northward of this place, and cloſe to the north baſtion, is the entrance of a river capable of receiving pretty large country veſſels over its bar, and which becomes very convenient for trade.

From Pondicherry to CONJIMEER the coaſt runs N. N. E. ½ E. 4½ leagues: between them are ſand-downs along the coaſt, and behind theſe the black land before mentioned gradually decreaſing, terminates about a mile to the ſouthward of Conjimeer: this place is only remarkable by the ruins of a factory which the Dutch abandoned after 3 or 4 years reſidence; you find alſo the remains of an old Engliſh incloſure. The anchoring place is very good oppoſite Conjimeer, in 6, 7, or 8 fathoms, about 2 miles off the coaſt.

From Conjimeer to ALLEMPARVA the courſe is N. E. by N. 5 leagues; about one league beyond Conjimeer, you perceive a thick wood and a village; then the coaſt appears lower, and ſeems to bend in a little until you come near Allemparva, where the ſouth ſide of the river riſes in ſand-downs, and projects out a little; otherwiſe the point is not dan-

* *Voyage dans les mers de l'Inde.* Vol. I. page 584, & ſeq.

gerous,

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gerous, and in paſſing it the depth diminiſhes but one fathom; the north ſide of the river is covered with trees, and there are ſeveral hillocks on the land. The French had a ſettlement at Allemparva, which was deſtroyed by the Engliſh. You may coaſt it along from Pondicherry in 10, 12, or 14 fathoms, 4, 6, or 8 miles off the ſhore: in the offing you have 38, 40, or 44 fathoms, ſand and gravel, 5 or 7 leagues from the coaſt, and without that no ſoundings.

From Allemparva to SADRAS, a Dutch ſettlement, the diſtance is 7 leagues N. E. by N. the country between them is partly flat, ſandy, and but few trees till within 3 leagues of Sadras, where begins a thick wood of palm-trees, extending about a league to the North; abreaſt of this wood, the water being ſhoaler than to the northward or ſouthward of it, you ought to keep off a little farther thereabout in 11 or 12 fathoms. About 5 or 6 miles to the northward of the above wood, there is another equally thick, which, when you come from the South, ſeems to run out to ſea, and form a point of land. From the ſouthern part of this wood you may perceive the high flag-ſtaff of Sadras, which is ſeen at a great diſtance over the trees that hide the town: there are two pagodas, but not very diſcernible, one to the northward and the other to the ſouthward.

From Allemparva you may ſee the high land of *Sadras*, a ridge of hills, ſome of which are very rugged, up in the country at the back of Sadras. You may ſail along the coaſt in 10, 11, or 12 fathoms, at 5, 6, or 7 miles diſtance, and in the offing from 30 to 40 fathoms, coarſe ſand and gravel, 5 or 6 leagues off ſhore. Four miles to the ſouthward of Sadras, you paſs by the mouth of the *Palyam*, or Paliar River. The high land of Sadras bearing N. W. 4 or 5 leagues, you have 30 fathoms, but no ſoundings without 45 fathoms. When the ſouth part of the high land of Sadras bears N. W. then Sadras is bearing Weſt.

From Sadras to Madras, the coaſt lies N. by E. 11 or 12 leagues; the land near the ſea is low and woody, but farther in the country it has ſeveral high mountains.

The coaſt from Sadras to Covelong, and to the northward of it, is ſteeper-to, and has deeper water than off Sadras, or to the ſouthward of that town. You may in this part coaſt it along in 20, 22, or 24 fathoms, at 4, 5, and 6 miles off ſhore; in the offing you will have from 30 to 40 fathoms, 4 or 5 leagues off the coaſt, and without theſe depths no ground.

About 7 miles to the northward of Sadras are the *Seven Pagodas of Moolivaram*, which can be ſeen only near the ſhore; two of them ſtand, one very near the ſea, and the other on a rock waſhed by the ſea, which has almoſt deſtroyed it: the four others are in the valley near the foot of the ſouthernmoſt high land, and one on the very pitch of it: the ſight of the pagodas in this valley is often intercepted by the woods, eſpecially when they bear about Weſt.

From the Seven Pagodas to COVELONG the coaſt runs to the N. by E. a little eaſterly, about 3 leagues; you ſail along between 18, 20, 22, or 24 fathoms, at 4 or 6 miles diſtance, and the bank of ſoundings extends 13 or 14 miles farther to 30 and 40 fathoms. In this paſſage there is a rocky ſhoal projecting about a mile into the ſea, which bears E. S. E. from the hillock of Tripaloor, remarkable by being much nearer the ſhore than any of the others.

Covelong,

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Covelong, called alſo *Covolam*, has a Portugueſe factory-houſe, on which they hoiſt their flag; this houſe being very white is eaſily known.

From Covelong to St. THOME', or *St. Thomas*, another Portugueſe town, the courſe is N. ½ E. about 4½ leagues. This town, called by ſome *Maliapore*, lies cloſe to the ſeaſide, and is nothing but a heap of ruins; there are ſome churches, eſpecially a cathedral, the ſee of a biſhop ſuffragan to Goa, and in whoſe dioceſe are all the Portugueſe churches on the Coaſt of Coromandel. The ſoundings are between 14 and 20 fathoms at a diſtance from 3 to 6 miles off ſhore, and in the offing from 30 to 40, and 44 to 45 fathoms at 6 leagues diſtance, then no ſoundings.

Inland there are high mountains, the northernmoſt of which is known from the others round it, by being rounder and flatter, with a church built on its top: this is called St. *Thomas's Mount*, 2 miles to the weſtward, and is eaſily ſeen in ſailing along ſhore. From the town or church of St. Thomas, to Madras, the coaſt lies N. ½ E. 4 miles; you range it along in 10, 11 or 12 fathoms water, 2 or 3 miles off ſhore: about half-way between there is a remarkable high black pagoda.

MADRAS, or FORT ST. GEORGE, in 13° 12′ latitude North, and 80° 32′ eaſt longitude from London, is the principal Britiſh ſettlement on the Coaſt of Coromandel, and the ſeat of the ſuperior governor and council. It is divided into the white and black town; the firſt is ſmall but well built, and well fortified; the latter, conſiderably larger, lies to the northward of it, and is the abode of the Gentoo merchants, Moors, Armenians, Jews, &c. and ſome Europeans who cannot dwell in the white town; a little river, over which there are two bridges, empties itſelf to the ſouthward of the town, forming an elbow in its courſe from the northward, whereby it ſurrounds moſt part of the fortifications, and adds greatly to the ſtrength of that fortreſs. It is a place of great trade, though few or no ſhips belong to it. The country is beautiful, fertile, and affords the moſt agreeable proſpect; here you have plenty of all ſorts of proviſions for a fleet of men of war, wood only is a ſcarce article.—The landing place is at the ſea-gate; but the ſurf breaking very high, and being greater here than on any other part of the Coromandel coaſt, renders the landing very dangerous. They proceed in the following manner in order to land: the ſhip's boat anchors juſt within the ſurf, where what they call the bar-boats come and take out the paſſengers or goods, carry them through the ſurf, and bring them on ſhore.

The watering place is about 1½ mile to the northward of the fort; but your ſhip muſt be watered by the country or bar-boats. The road is bad and entirely open; you lie there expoſed to all winds that blow, with a large ſwell conſtantly running in upon the ſhore, which makes the ſhips labour very much; the beſt marks for anchoring are the flag-ſtaff and the cupola of the town-clock in one N. W. by W. St. Thomas's Mount S. W. ½ W. and the high black pagoda mentioned above W. S. W. You are then in 10 fathoms, 1½ or 2 miles off ſhore, the bottom is muddy, and good holding ground; but farther to the northward it is reckoned foul, there being many wrecks, loſt anchors, &c. and many ſhips have ſpoiled their cables in this part. There is generally a northern current in the S. W. Monſoon, and a ſouthern one in the N. E. Monſoon, ſometimes running very ſtrong, and ſometimes not perceivable.

PASSAGE

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## PASSAGE FROM TRINCOMALEY TO MADRAS, OR ANY OTHER PART OF THE COAST OF COROMANDEL, IN THE N. E. MONSOON.

YOU muſt ſtretch off from Trincomaley to the eaſtward, a ſmall diſtance, more or leſs, as the wind hangs to the northward or eaſtward; always taking the advantage of the wind veering to the eaſtward, to ſtand to the northward; and of its veering to the northward, to ſtand to the eaſtward. In the offing, the winds hang pretty much to the eaſtward; ſo that, having a degree or two eaſting from Trincomaley, you will be able to fetch any part of the coaſt you may be bound to. Several ſhips have made a paſſage from Trincomaley to Pondicherry in 9 or 10 days, and to Madras in 12 or 13, even in December which is the height of the N. E. Monſoon, taking care to fall in to the northward of their port.

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## REMARKS MADE IN A PASSAGE FROM MADRAS TO TRINCOMALEY, IN APRIL 1762, TO AVOID THE LITTLE MONSOON.

### By Mr. NICHELSON.

"SAILED from Madras the 9th of April, and had moſtly little winds and fair weather, with ſmooth water; the winds chiefly from E. S. E. to S. S. W. and S. W. ſometimes we had them in the N. E. quarter, and then the breezes were freſher and ſteadier than in any other.

"We had various kinds of currents, ſetting ſometimes ſtrong to the northward, at other times as ſtrong to the ſouthward, and for ſeveral days together we perceived no currents at all. Though the currents are thus variable out in the bay, where they change with every ſhift of wind of any ſtrength or continuance, yet thus much may be depended on, that the nearer the coaſt, the ſtronger the current; as for inſtance, the firſt day we left Madras, the current ſet the ſhip 62 miles to the northward; the next day only 8 miles, and the third we found no current at all. The day before we made Ceylon, the ſhip's run and obſervation agreed exactly; we made Ceylon at 6 A. M. and at noon found the ſhip 35 miles to the northward of our reckoning; when we got inſhore and anchored, we found the current ſometimes running at the rate of 2 knots; all which together, ſufficiently prove that the nearer the land, the ſtronger the current.

"All along the Coaſt of Coromandel, the variation, what little there is, is weſterly; and this weſt variation continues for 1° 30′ or 2° of longitude from the coaſt. Then it changes to eaſt variation; and you may depend upon it, that, if coming in with the Coromandel coaſt, you change your variation from Eaſt to Weſt, you are not more than 30 or 40 leagues from the coaſt.

"It is well known, that in April, and from that month to the middle of May, the winds about the N. E. part of Ceylon are moſtly from S. E. to South in the day-time, and ſouth-weſterly

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weſterly at night. Theſe ſoutherly winds occaſion a very ſtrong northerly current at this time of the year: therefore I would recommend to all ſhips bound to Trincomaley, at this ſeaſon, to make the land in the latitude of 8° North, which is ½ a degree to the ſouthward of Trincomaley, and thereby ſave much time and trouble, as we experienced by falling in to the northward (though againſt reaſon, experience, and my remonſtrances), where we met with ſoutherly winds and northerly currents, and were forced to work up inſhore, anchoring, &c. whereby we loſt 7 days. Let this ſerve as a caution to thoſe who come this way hereafter; and remember that it is better to fall in 20 leagues to the ſouthward than 2 leagues to the northward."

## PASSAGE FROM THE COAST OF COROMANDEL TO THE COAST OF MALABAR.

THOSE who ſail from the Coaſt of Coromandel, Bengal, or any place more eaſterly, from the beginning of October, ſhould, in order to render their paſſage ſafer and ſhorter, make the iſland of Ceylon to the northward of the Baſſas; then keep along the ſouth coaſt as far as Colombo, from whence they are to croſs to Cape Comorin, and make the beſt of their port, conforming to what has been already ſaid in the deſcription of the weſtern coaſt of Ceylon.

If, in the months of October and November, they find to the ſouthward of Ceylon, the winds blowing from the Weſt to N. N. W. they muſt turn to windward, making advantage of the currents, which frequently ſet to the weſtward very ſtrong, and this advantage will be the greater by keeping near the ſhore.

## INSTRUCTIONS FOR MAKING THE OUTER PASSAGE FROM MADRAS TO BOMBAY, IN THE S. W. MONSOON.

By M. NICHELSON.

YOU are to work up along the Coromandel coaſt from Madras, as far as Negapatam, by taking the advantage of the ſea and land-winds, and to anchor when the wind and currents are againſt you. The paſſage between theſe two ports may be made in 10, 12, or 14 days at moſt, in any month of the year, but May, or the latter end of April, at which time the current runs very ſtrong to the northward. In June, July, or Auguſt, ſhips generally go from Madras to Negapatam in 9, 10, or 11 days.

When you have got to Negapatam, the worſt part of the paſſage is over, or it may be ſaid to be made ſure, for there you meet with ſtrong land-winds, that will run you over to Ceylon in 48 hours; and the ſtrong weſterly winds, which you will find all along the north-eaſt part of Ceylon, will carry you to the ſouthward very quickly. You muſt coaſt it along Ceylon as far as the Friar's Hood, which may be done, with the weſterly winds, from Trincomaley, in two days.

From the Friar's Hood you ought to ſtretch off, and take your departure. Ships having briſk gales at S. W. and W. S. W. have croſſed the Line the third day. Longitude made from the Friar's Hood 5° 26′ Eaſt, variation 37′ Weſt.

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In latitude 2° or 2° 30′ South, you meet with the S. E. trade-winds; you ought to run to the ſouthward, into 9° 30′ or 10° South, where theſe winds blow freſh; and there you muſt run down your weſting; about 14° or 15° from the Friar's Hood will be ſufficient.

Being in that latitude of 9° 30′ or 10° South, take care to ſteer ſo as that, by the time you have made 9° 30′ or 10° of weſt longitude from the Friar's Hood, you ſhould have reduced your latitude to 3° or 3° 30′ South. From hence ſteer to the weſtward till you have made 4° 30′ of longitude more, by the time you are in the latitude of 2° South. This track leads between the Baſſas de Chagas and Diego Ruyz Iſlands, heretofore deſcribed.

When in latitude 2° South, and longitude made from the Friar's Hood, about 14° 30′ Weſt, then croſs the Line, and ſteer to the northward: hereabouts the weſt variation begins to increaſe. Before you croſs the Line you will meet the S. W. Monſoon; and, as ſoon as you get into the north latitude, you will have freſh gales with hazy dirty weather, and the more ſo as you proceed to the northward.

Having croſſed the Line in the above-mentioned longitude, of 14° 30′ Weſt from the Friar's Hood, you will ſteer to the northward with this weſting, and take care to keep it. The Coaſt of Malabar lying N. N. W. and S. S. E. a north courſe will carry you in upon the ſhore, whilſt a N. N. W. courſe carries you parallel to it. Several ſhips have fallen in with the coaſt ſooner than they intended, for the want of this conſideration, and by ſteering North.

In ſailing this track, the variation increaſes to about 3° or 3° 30′, which, if properly attended to, will correct your longitude. In latitude from 8° to 10° North, and 7° to the weſtward of the Lackdivas you will have 4° 12′ weſt variation: and then 3° 30′ when you are in the above latitudes, 5° 30′ weſtward of theſe iſlands. Alſo if the variation be 2° 27′ or 2° 30′ Weſt, you will be 3° 30′ to the Weſt of the Lackdivas; in the above latitude the variation being 1° 27′, or 1° 30′ Weſt, you will be 2° to the weſtward of theſe iſlands; and in ſight of them, the variation is only 1° 8′ Weſt. If you make weſting, you will increaſe your variation: if eaſting, you will decreaſe it. In latitude from 11° to 12° North, you will have variation 3° 5′ Weſt; 8° 26′ to the weſtward of Goa. In latitude from 12° to 14° North, 3° variation, and 3° 5′ Weſt; 7° to the weſtward of Goa. In latitude 14° 30′ North, you will have variation 2° 12′ Weſt, longitude 3° 30′ to the weſtward of the ſame city. In latitude 15° and 15° 30′ North, you will have variation 1° 28′ or 30′, 2° to the weſtward of Goa. Off Goa, in ſight of the land, in latitude 15° 30′, you will have 42′ variation Weſt.

A ſhip keeping in 2° 30′ weſt variation, will go far enough to the weſtward, and alſo keep clear of every thing in making this outer paſſage; keeping in 3° weſt variation will carry her along to the northward, parallel to the coaſt, which is as ſafe and unerring a guide, as the Sun at noon for finding the latitude.

You are to proceed to the northward till you get into 18° 50′, which is the proper latitude to ſteer to the eaſtward for Bombay; but you muſt make an allowance for a ſoutherly current, which, in the S. W. Monſoon, you generally find ſetting along the coaſt, from 15 to 20 and 24 miles in 24 hours. Steer to the eaſtward in the parallel of 18° 50′ till you have ſoundings, which you will find 30 leagues off the coaſt, at 80 or 90 fathoms, and ſhoaling gradually.



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# DESCRIPTION OF THE COAST OF COROMANDEL, FROM MADRAS TO THE NORTHWARD.

## PULLYCATE AND SHOAL—ARIMEGON—CALITOUR, &c.

FROM Madras to the *Reef of Trifoo* or *Natoor* the courſe is N. N. E. 3 leagues. You may know when you are near it by a ſmall cluſter of trees of equal height, and whoſe flat top reſembles a table: when this wood and two palm or cocoa-trees are in one, you are athwart the reef, which projects a good league into the ſea; having opened the two trees, with the little wood a ſail's breadth, you muſt ſteer N. E. to keep clear of the ſhoal that lies off Pullycate, the ſouthernmoſt part of which bears N. E. by E. 2 miles from the pitch of the reef.

From Madras to PULLYCATE the coaſt lies N. by E. about 7 leagues: you have from 14 to 18 fathoms water, 3 or 4 miles off ſhore; and from 30 to 35 fathoms, ſandy ground, at 3 or 4 leagues. The land near the ſea is low and woody, though in ſome places, the trees, being pretty high, make it appear at a diſtance like hillocks, or very broken land. In the country lofty mountains, called *the High land of Pullycate*, are ſeen a great way off in clear weather.

PULLYCATE SHOAL extends N. E. by N. and S. W. by S. its north end lies S. E. by S. from the river; ſhips that ſail 3 leagues diſtance from the coaſt need not fear it.

"To enter PULLYCATE ROAD coming from the ſouthward," ſays Captain *George Baker*, 1759, "do not come under 13 fathoms till the flag-ſtaff bears Weſt, when you may ſtand in Weſt, a point or two northerly, to bring it W. $\frac{1}{2}$ S. or in one with the *kettlebottom* (a remarkable hill up the country); in this track there are at leaſt $5\frac{1}{2}$ fathoms, till you get within about 2 miles of the flag-ſtaff, in the above direction, when you will have 7 or 8 fathoms, ooze."

From Pullycate to ARIMEGON or *Armegon*, called alſo *Duraſpatam*, the coaſt runs North and N. N. W. 13 leagues; about half-way, 3 leagues off ſhore, lies a ſmall bank, with $2\frac{1}{2}$ fathoms upon it. Mr. *Dalrymple* in 1763, named it the *London's Bank*. Five leagues N. by W. from this is another, called by ſome Arimegon Shoal, at the ſame diſtance off ſhore. When bound to Arimegon you may go between theſe two ſhoals, but you muſt be acquainted herein, or elſe it is better not to venture; you find between the coaſt and the banks a large and fine channel which extends N. by E. and S. by W.

According to M. *D'Après*, to ſail with a fair wind from Pullycate without the banks, you keep off the coaſt ſteering N. N. E. along the banks, and not coming under 8 or 9 fathoms water; if you get into 12 you muſt edge in again to 9 fathoms. This is abſolutely neceſſary for thoſe who go to Maſulipatam, becauſe in June, July, and Auguſt, the currents ſet N. E. and even ſometimes more eaſterly; ſo that if you keep too far off, you would run the riſk of loſing your paſſage, as it has happened to ſeveral ſhips that have not been able to fetch nearer than Narſapour, and thence turn it, but with great trouble, to reach Maſulipatam.

Abreaſt of the London's Bank the trenching of the coaſt is toward the N. N. W. to Arimegon,

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Arimegon, diſtance 6 leagues. Within land may be ſeen Arimegon Hill; when it bears Weſt you perceive, a little to the ſouthward, near the ſhore, the ruins of an old Engliſh factory, and to the S. S. W. the mountains of Pullycate.

Captain *Baker* recommends, in coming from the ſouthward to Arimegon, to keep in 12 or 13 fathoms till the Kettle-bottom, if viſible, bears about S. W. $\frac{1}{2}$ W. then Arimegon Hill (which ſtands by itſelf, and detached from any other, almoſt due Weſt from the town) will be about W. N. W.; having a ſight of this you continue your courſe till it bears W. $\frac{1}{4}$ S. or in one with the north grove, which may now be ſeen from the poop, then the Kettle-bottom will bear S. W. Thence ſtanding on in the ſame courſe, you will have not leſs than 6 fathoms, till within about 2 miles off ſhore, where you may anchor in 5 or 6 fathoms, and have an eaſy communication with the river.

From Armegon to CALITOUR or *Kiſtnapatam*, the coaſt runs North, ſomewhat eaſterly, 5 leagues: in this interval part of the Armegon Shoal is generally laid down, and the courſe to avoid it is N. N. W. in 10, 11, or 12 fathoms. Four leagues farther North you come to PENNAR POINT, at the mouth of a large river of the ſame name. You muſt ſail in 16 or 17 fathoms, and come no nearer, on account of a bank ſtretching there 4 miles out, and which being very ſhoal, is conſequently the more dangerous. Captain *La Touche* being at anchor off it in 25 fathoms, prepared in the night-time, with a fair wind, to make a trip N. W. and regain the depth of 13 or 14 fathoms; though the wind was moderate, and he had got but a little way, in leſs than a quarter of an hour he fell from 15 to 5 fathoms; this obliged him to haul off immediately; however, on heaving the lead, and finding the next caſt 15 fathoms, he imagined he might be deceived in the ſounding; but he has ſince learned that this bank really ſhoals from 15 to 5 fathoms, as he had found it.

From Pennar Point to DIVELAN they reckon 3 leagues North, and from the latter place to ZARERA about 6 leagues N. by W. you may coaſt it in 8, 9, or 10 fathoms. To the northward of Zarera are two very thick woods; and in the town a white pagoda. Within land are ſome high mountains which ſhew themſelves 10 or 12 leagues at ſea in clear weather.

From Zarera to the mouth of GONDEGAMMA RIVER, the coaſt trenches N. E. by N. $\frac{1}{4}$ N. about 9 leagues. Along this coaſt runs a bank extending a little into the ſea, and without it another, but ſmall veſſels may paſs within it; neither of them is dangerous to large ſhips that keep in 9, 10, or 11 fathoms: in approaching the river you perceive the village, with a pagoda on the ſea ſide.

The mouth of the Gondegamma is the northernmoſt boundary of the Coaſt of Coromandel, beyond which the Coaſt of Golconda begins.

## THE COAST OF GOLCONDA,

### MASULIPATAM—POINT GORDEWARE—CORINGA BAY, &c.

MOOTAPILLY, the firſt place of note on this coaſt, lies about 3 leagues or more N. E. of the Gondegamma river. You may coaſt it at a league diſtance in 9 or 10 fathoms, ooze. Eaſt of Mootapilly is a grove of palm-trees, and a little farther another leſs,



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and ſeemingly higher than the firſt, conſiſting only of 20 or 30 trees. When you ſail along the coaſt, in the depth above mentioned, you go within the bank of ſand, which lies 5 leagues S. E. by E. from Mootapilly; it is 7 or 8 leagues long N. E. by E. and S. W. by S. on the ſouth-weſt part of it, which is the ſhoaleſt, there is not leſs than 3 fathoms. The approaches of this bank are known by a ſandy bottom; inſtead of which, in the channel, between it and the land, the bottom is ooze.

In ſailing from athwart Divelan, Zarera hill bearing N. W. by N. to go clear of this bank you muſt ſteer N. E. and be careful to keep in 10 or 12 fathoms, ſtiff ground, then you have nothing to fear; but if the depth increaſes, and the bottom becomes ſofter, edge in, and ſhape a courſe to the eaſtward of Pettapilly, in order to get into 9 or 10 fathoms, oozy ground.

PETTAPILLY lies 7 leagues to the N. E. of Mootapilly; about 2 miles weſtward of the town runs a little river, and oppoſite the town a grove of palm-trees remarkable for its being flat and even, for which reaſon it is called the *Table of Pettapilly*.

From Pettapilly to Chipelar river, the ſouthernmoſt and principal mouth of the Kiſtna, or Kriſtma river, is about 8 leagues nearly Eaſt, the coaſt in that interval forming a pretty deep bight towards the N. E. About 3 or 4 leagues Eaſt of Pettapilly begin the openings of ſome of the branches of the Kiſtna, which running along the low land form iſlands of it, but they are not perceptible to thoſe who ſail along ſhore: theſe branches ebb and flow, and a navigator has obſerved the water here to riſe and fall 4 feet, being at anchor in 5 fathoms, ooze.

From the ſouthernmoſt opening of the Kiſtna to POINT DIVY, the courſe is N. E. by E. diſtance 6 or 7 leagues. The coaſt to the northward of Point Divy is low land, level, and without trees. Along it the mouths of two rivers may be perceived, and near Maſulipatam a tuft of palm-trees about a league to the S. W.; theſe trees in coming from the S. E. ſeem to form only one great tree, but they are ſeen ſeparate when you approach. Captain *George Williams* obſerves that, "when Point Divy bears N. N. W. about 3 leagues diſtant, you ſee 4 palm-trees diſtinct in a row on the beech, behind which is a ſand-hill; the real point is full of trees, and along the ſandy beach to the northward not a tree is to be ſeen."

Point Divy bank extends to the S. E. of the point, therefore the ſhips coming from the weſtward that coaſt it along in 7 fathoms, are obliged to ſteer S. E. to keep in the ſame depth on the edge of the bank. When you have paſſed it, and Divy Point is bearing N. W. by W. you may then go round in 7 fathoms to fetch the road of Maſulipatam, whoſe flag-ſtaff is deſcried before you can ſee the coaſt.

MASULIPATAM lies about 3 leagues to the north-weſtward of Divy Point; it is ſituated at the entrance of a ſmall branch of the Kiſtna; and another branch of the ſame river runs on the north ſide.

From Maſulipatam to NARSAPOUR, or *Narſipore*, the courſe is E. by N. $\frac{1}{4}$ N. diſtance from the town $13\frac{1}{2}$ leagues, and from the road 12 leagues. The coaſt between the two is encompaſſed with a bank that extends half a league into the ſea, and oppoſite Narſapour river there

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there is another bank about one league from ſhore; you have on the bar of this river 8 or 9 feet water. Within the bar of the Kiſtna, or Narſapour river, there are from 4 to 3 and 2 fathoms water, and then up the river to Narſapour from 4 to 6, 7, and 5 fathoms; but no dependence can be had on the ſands at the bar, as they are conſtantly ſhifting.

Several Charts place a ſhoal 3 leagues South of Narſapour, which ſome deſcribe as rocky, and others as ſoft ground; but the exiſtence of ſuch a danger is denied by the major part of the navigators, who in this track muſt have run over it; in caſe it ſhould really exiſt you may prevent the dangerous effects of it, by keeping your lead going, which caution in theſe parts ought to be conſtantly obſerved.

If you are bound to MASULIPATAM in the weſterly Monſoon, it is neceſſary to keep ſoundings on the coaſt, whether ſailing within or without the ſhoals of Armegon and Mootapilly. This holds good from the month of May to that of October; but in February, March, and April, as the winds generally blow between Eaſt and South, you muſt ſteer for Narſapour, and even more to windward, if poſſible, in order to give Pettapilly bight a good birth, from whence you could not get out, without great difficulty, and the help of weſterly winds, for which you ſhould be obliged to wait.

We muſt obſerve that when you ſail within the ſhoal of Mootapilly, after you have coaſted along as far as Pettapilly in 9 fathoms, you muſt ſteer S. E. and even S. E. by E. to double Chipelar river, or the mouth of the Kiſtna, abreaſt of which you will find 7 fathoms, 2 leagues off ſhore.

In the month of May you can ſhape a courſe between Maſulipatam and Narſapour, becauſe the winds vary then from S. S. E. to S. W. and ſometimes as far as W. S. W.

In October, November, and December, there is but little navigating here, as well as all along this coaſt. In the months of December and January, if you be at the bottom of the Coaſt of Coromandel, you cannot return, becauſe the N. E. winds and currents, which run to the ſouthward, are then in their greateſt force.

To go to Maſulipatam when you are off Divy Point, you muſt keep in 8 or 9 fathoms to avoid the bank of Divy. When Divy Point bears Weſt, you muſt round it in 7 or 8 fathoms, and ſteer N. N. W. borrowing more or leſs from the weſtward, according as you find yourſelf nearer or farther from the ſhoal; then edge away, by little and little, in 5 fathoms, ooze, always avoiding the hard ground. When the depth exceeds 6 fathoms, you muſt borrow more from the Weſt, and ſteer thus as far as the road of Maſulipatam, before which you anchor in 4 or 5 fathoms ooze, at $1\frac{1}{2}$ league off ſhore.

We have deſcribed here above the tuft of palm-trees by which Maſulipatam may be known; but without this mark it is eaſily diſtinguiſhed by the houſes and flag-ſtaffs of the Europeans. To the northward of the town you will perceive alſo a wood cut even, and whoſe trees are of an equal height. The whole bottom in Maſulipatam Bay, is ooze, except near ſhore; and the depth does not decreaſe above $\frac{1}{2}$ a fathom for a quarter of a league.

From Narſapour Road to Point Gordeware or Guadavery, the courſe is E. N. E. 14 or 15 leagues. About 8 leagues Eaſt of Narſapour you ſee two white pagodas, which you ſhould

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ſhould take care not to confound with thoſe that ſtand to the Weſt of Point Gordeware, and to the eaſtward of which pagodas is Viſheron River: ſeveral navigators have been miſtaken herein for want of obſerving that theſe laſt are three in number.

"Point Gordeware," ſays Captain *Leſley*, "has on it three remarkable trees, and not one near them, or to be ſeen at all. Two or 3 leagues to the weſtward of the point, which is low, and off the pitch of the point, ſteep, come not nearer than 16 fathoms in a large ſhip. On your approach to the ſouthward of the point, you will not have ſoundings till within 4 leagues, and they ſhoalen 10 fathoms at a caſt: you will be in 16 fathoms from 50 in 3 or 4 miles run, ſo in ſtanding on in the night, with freſh wind, it is time to tack ſo ſoon as you ſtrike ſoundings. To the northward of the point the ſoundings are more regular.

"There ſeems to be," continues this gentleman, "one thing wanting on this coaſt, which a very ſmall expence would do; and it would be productive of great advantages to the trade of this country; which is to build on all the ſhoal points ſuch as *Divy*, *Gordeware*, *Falſe Point*, and *Point Palmiras*, obeliſks, or other land-marks, on the pitch of each point: for all theſe points are ſo low that it is with difficulty they ever can be diſtinguiſhed, as no ſhip chooſes to go near enough them, particularly ſailing along the coaſt. Now what infinite advantages would not accrue from being able to know at a great diſtance where the point really is? an obeliſk or land-mark 30 feet high, would be ſeen on ſuch flat low land 6 or 7 leagues off; the expence would be ſo very trifling, as not worth mentioning in compariſon to the end attained."

Point Gordeware, according to the trigonometrical ſurvey of Mr. *Michael Topping*, 1789, lies in 16° 48′ latitude North, longitude 82° 17′ Eaſt. It is a low and very narrow hard ſandy beach, 4 or 5 miles long, in a North and South direction, over the north part of which the ſea breaks heavily: there are alſo banks of breakers about 3 miles in length, at its north end, over which the ſea breaks very white. Within this point about 6 miles W. by N. is the opening of one of the branches of the Guadavery river, on which ſtand the town and Engliſh factory of Coringa. A bank which begins at $2\frac{1}{4}$ miles from the pitch of the point, extends above 4 miles N. N. W. and then about Weſt to the oppoſite ſhore; it is ſoft mud towards the ſea, with a depth of $3\frac{1}{2}$, 3, $2\frac{1}{2}$, and 2 fathoms; but within the point, to the diſtance of $1\frac{1}{2}$ mile from Coringa river, it is hard ground, very ſhallow, and in moſt places dry.

Coringa Bay is between Point Gordeware and Jaggernautporam*, whoſe river's mouth lies about 10 miles N. W. by N. from the point. The ground within the bay is almoſt every where a ſoft mud. The uſual anchoring place for country veſſels is to bring Jag-

* This town is alſo called Jaggernaicporam, Jagrenatpour, and Cocknara. Captain *George Williams*, who calls it Jeknaporam, ſpeaks thus of it. "It is in a deep bay much eaſier ſeen to the northward of Coringa, and in ſight of each other. Jeknaporam is known by a white fort and flag-ſtaff of the Dutch ſettlement: you anchor in $5\frac{1}{2}$ fathoms, the flag-ſtaff bearing N. W. diſtance off ſhore nearly 2 miles; you may land in the ſhip's boat keeping the fort open with the mouth of the river which you enter, and which goes a long way above the town. Ships, &c. are well built here, and I think cheap. I ſaw a ſnow 65 feet keel, 24 feet beam, carry 9000 B. mauds computed at 4000 ſtar rupees. Wood, water, and ſtock are obtained eaſily, and ſtock is cheap, 10 fine fowls for a rupee, &c. &c.

gernautporam,

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gernautporam, which is eaſily known by the white buildings, to bear N. N. W. in 3 fathoms; the bar off Coringa will then bear about S. W. by S. and Hope Iſland, which is a low ſandy bank, and can only be ſeen in clear weather, S. S. E. $\frac{1}{2}$ E. diſtant off the neareſt ſhore leſs than 2 miles.

It is high water in the bay, at full and change days, about 9 h. $\frac{1}{4}$* or 10 o'clock, but a ſtrong eaſterly wind will ſometimes make high water near an hour ſooner, and will keep it up conſiderably; when this circumſtance happens, the flood will make very ſtrong before its uſual time.—The ſprings ebb from 5 to $5\frac{1}{2}$ feet, and the neaps ebb from $2\frac{1}{2}$ to 3; the high water of theſe being about 2 feet leſs.

On the bar there is from 13 to 14 feet water, according to the height of the ſprings, ſandy bottom, and the water quite ſmooth, as well as in the roads: without the bar the bottom is ſoft mud, and it is not uncommon to ſee veſſels aground in it during the greateſt part of the flood and ebb.

When over the bar the leading mark up the river is a ſmall tope of little trees a-head W. by S. $\frac{3}{4}$ S. (about 120 yards from the ſtarboard ſhore) till you open the river on the ſtarboard ſide; then ſteer for a village and Palmira tope on a point S. W. till you are nearly ſhutting in the ſea ſhore to the ſouth-eaſtward; then ſtand away for the weſt end of the fiſhing ſtakes: there is not leſs in this track than from $3\frac{1}{2}$ to 4 fathoms.—Up the river is the town of Ingeram, where the Company has a chief. The French factory of Yannaon, or Yannam, was on the larger branch of the Guadavery to the ſouthward of Coringa.

All this detail cannot be better concluded than by the intereſting deſcription of Captain *Leſley*. "As I have been," ſays this officer, "under the neceſſity to put in CORINGA

* This is according to Mr. *William Stephens*, Sub. Dir. Engin. Captain *Leſley* ſays, it flows there full and change 8h. 15m. S. E. by E. and N. W. by W. 6 feet up and down. Mr. *Topping*, differing from both theſe gentlemen, ſays it is high water at Coringa, at the full and change, about 9 o'clock; but that the higheſt tides are generally the 3d or 4th after the ſyzigies, when the total riſe of the ſea is from 4 to 6 feet: he then gives the following

TIDE TABLE FOR CORINGA.

| *Moon's Age.* Days. | *High Water.* Hours. Minutes. |
|---|---|
| 0 — 15 | 8 — 30 |
| 1 — 16 | 9 — 0 |
| 2 — 17 | 9 — 45 |
| 3 — 18 | 10 — 30 |
| 4 — 19 | 11 — 0 |
| 5 — 20 | 11 — 45 |
| 6 — 21 | 12 — 45 |
| 7 — 22 | 1 — 45 |
| 8 — 23 | 2 — 50 |
| 9 — 24 | 3 — 50 |
| 10 — 25 | 4 — 50 |
| 11 — 26 | 5 — 45 |
| 12 — 27 | 6 — 45 |
| 13 — 28 | 7 — 30 |
| 14 — 29 | 8 — 0 |

BAY,

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BAY, to refit his Majeſty's ſhip the *Orford*, and ſtop ſeveral leaks, the obſervations I have made of what uſe this place may be of, will be found, I hope, of ſome utility to my country.

"Coringa Bay and river are capable of being of infinite ſervice to the King's, Company's, and country-ſhips, being the only place on the weſt coaſt of the Bay of Bengal, where a veſſel above 200 tons can be refitted, or ſtop her leaks during the S. W. Monſoon. It is always, during that Monſoon, ſo ſmooth in this bay, that a ſhip may venture to take a large heel for the above purpoſe; and, if occaſion required, could heave down. There are always a great number of caulkers and carpenters employed here, all the year round, repairing and building country veſſels. The *Orford*, in two days after her arrival, had between 30 and 40 caulkers ſet to work on her, and was on the heel to ſtop her leaks, and ſhift ſome planks, for 6 or 7 days. In caſe of neceſſity ſeveral hundred caulkers and carpenters could be procured along the coaſt: there is alſo timber and ſeveral ſtores to be got. Wood and water are obtained with convenience and facility; and freſh proviſions of all kinds, was it an eſtabliſhed port, would be procured in great quantity. There are beſides a great number of decked country-boats called Doneys, which would be of infinite ſervice to a ſquadron putting there to refit. To all theſe advantages add the vicinity of Coringa Bay to *Pegu* river, for the ſupply of large teak timber of all ſorts, and other naval ſtores (not being above 10 days ſail from it) in either Monſoon; alſo the port of *Rhio*, in the South part of the ſtraits of Malacca, where poon maſts and ſpars are brought from, beſides oil, dammar, and pitch, with ſeveral other uſeful articles, which they obtain there for the dock yard at Bombay.

"I find but one ſhoal in the bay, and the leaſt water on that is 19½ feet, ſo that the largeſt ſhips have only to fear this; it is a ſmall ſpot, and a buoy laid down on it would prevent all danger."

The Coaſt of Golconda extends as far as *Selliavaram*, a ſmall town 12 or 13 leagues to the N. E. of Jaggernautporam; this part is clear of all danger, and you may range it along in 6, 7, or 9 fathoms, 3 or 4 miles off ſhore; then you come to the Coaſt of Oriſſa.

## THE COAST OF ORISSA.*

### VIZAGAPATAM—BIMILIPATAM—CHICKACOLE—GANJAM—FALSE POINT, AND POINT PALMIRAS.

ELEVEN miles to the N. E. of Selliavaram, and about 16 leagues N. N. E. from Point Gordewar lies WATTARY, or Wataree, where the mountains of Oriſſa begin: Wataree is known by a moſque built on the top of a hill. When you make this coaſt coming round Point Gordewar, the firſt diſtinguiſhable land you deſcry is a remarkable mountain at

* The original name given by the Portugueſe is *Orixá*, which they pronounce *Oriſſa*.

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a great diſtance, which has ſomething of the appearance of a ſhoulder of mutton; and alſo a peaked hill, which, however, you cannot ſee ſo plain but when you approach nearer.

About 4½ leagues from Wattary lies *Panary*, or *Pondimarca*, which is known by a ſmall hummock on the ſtrand, to the weſtward of which is a ſmall bay and a creek for boats: the latter is 2 miles farther, with ſome big rocks above water; about muſket ſhot from ſhore, you keep 2 miles offing in 10 or 11 fathoms.

VIZAGAPATAM, a conſiderable Engliſh ſettlement, is about 10 leagues to the N. E. of Wattary. *Pigeon Iſland*, which lies 6 or 7 leagues from Wattary, is the only one on the coaſt; it is cloſe inſhore, and cannot be diſtinguiſhed as an iſland at any diſtance, but appears like a ſmall round hummock; the coaſt abreaſt of the iſland is a high ſand bank, whoſe eaſternmoſt part is full of trees.

Vizagapatam is diſtinguiſhed by the hill called the *Dolphin's Noſe*, which riſes on the weſternmoſt point of the road, but it is better known by a high mountain plainly ſeen 7 or 8 leagues inland; whereas the Dolphin's noſe at a diſtance is eclipſed by the high-land at the back of it, beſides it having a great number of hills of various heights and ſizes to its ſouthward.

When Pigeon Iſland bears North, diſtance 6 or 7 miles, the Dolphin's noſe may be plainly perceived; a large moſque ſtands upon it, but not eaſily ſeen till pretty near, becauſe it is on the eaſternmoſt declivity of the hill. To anchor there the two high cocoa-trees, which grow before the fort, muſt be brought in one; then the river's mouth will be open to you, and in 12 fathoms you have good ground for a large ſhip; but you muſt bend your beſt bower cable to an anchor of about 16 cwt. otherwiſe it will be impoſſible to weigh it. Another mark is to bring the Moſque N. W. or N. W. ¼ W. and anchor in 9½ fathoms.

Mr. *John Seaton's* directions being more accurate and more circumſtantial, muſt be added to theſe, as follows.

" For coming to anchor, at Vizagapatam, in ſmall veſſels, bring Martin's Point and Tornary's battery in one; the outermoſt ſtones below the Dolphin's noſe S. S. W. the Little battery by the bar W. N. W. here you have 6 fathoms, ſand, and are cloſe under the north ſide of the Noſe, which is ſteep-to. In large veſſels bring Martin's Point flag-ſtaff and the guard-room by Tornary's battery in one; the Green Hill to the ſouthward of the Noſe S. W. the Sugar-loaf and Walltear houſe in one; the Bar-battery N. W. by W. here you have 8 fathoms, ſand and mud. *N. B.* They who bring to farther off ſhore are in danger of loſing their anchors in a very ſtiff ground.

" For coming to anchor in the N. E. Monſoon bring the Fort flag-ſtaff, and centre of the middle battery in one; the two lower Muſkeats in one; Walltear houſe and the weſt ſide of the Sugar-loaf, in one, you have 8 fathoms, ſand.—When the north-eaſt end of fort houſe, and the north end of the centry box on the middle battery are in one, you have the river's mouth open: Walltear houſe and the weſt ſide of the Sugar loaf in one, the top of Green Hill juſt open with the Noſe, here is 8 fathoms, ſand and mud, diſtance off ſhore a good 1½ mile, and the beſt road for any veſſel.



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" When the guard-room by Tornary's battery, and the centry box on Benyon's battery, are in one, Walltear houſe and the Sugar-loaf, as alſo the Noſe and the Green Hill in the ſame bearings as before, you have 8 fathoms, ſand and mud, the river's mouth full open: this is the moſt northerly birth veſſels ought to come to."

From Vizagapatam the coaſt runs N. E. about 5 leagues to BIMILIPATAM, a Dutch fort and factory taken by the Engliſh in 1781, and reſtored by the laſt peace: it is known by a long mountain, which runs inland from the ſea ſide: you perceive alſo upon the ſhore a little hill to the weſtward of Bimiliparam, like a Sugar-loaf; when you have paſſed it the Dutch factory is ſeen on the weſt ſide of the river. You may anchor there in 6, 7, or 8 fathoms, ſoft ground, the factory bearing W. by S. To lie on the other ſide of the river it muſt bear S. W.

From Bimilipatam to Conar or Conara River, the courſe is N. E. by N. about $3\frac{1}{2}$ leagues; half a league farther to the N. E. is *Conara Point*. To the eaſtward of Conara you ſee a thicket of palm-trees, S. E. by E. 2 leagues from which are the ROCKS OF CONARA or *Santipilly*. When you coaſt along from Bimilipatam the beſt channel between the main and theſe rocks is to keep in 7 or 8 fathoms, but at fartheſt no more to ſeaward than 9 or 10, nor nearer the ſhore than 5 or 6 fathoms. If you ſail without this danger, you ſhould not come nearer than 16 or 17 fathoms; and in this caſe the ſureſt way will be to keep in 20 fathoms, which will carry you 2 leagues wide of the rocks, near which the current ſets ſtrongly on them.

From Conara Point to Mauſaze-bunder, at the entrance of CHICACOLE river, the coaſt extends $11\frac{1}{2}$ leagues to N. E. by N. and then to the N. E., the land between forming ſomething of a bight. Near Chicacole river are 3 or 4 great trees, and ſome palm-trees; the town lies $1\frac{1}{2}$ league up; in ſailing along you may keep 4 miles offing in 13 fathoms, ſandy ground.

From Chicacole to CALINGAPATAM, the bearing is N. E. $\frac{1}{4}$ N. diſtance 15 miles; this place is known by 3 or 4 great trees to the northward; and you have 13 or 14 fathoms a league from the ſhore. About 10 miles farther, with the above bearing, you come to Caletar or ALATAR; you ſee between the two places two thickets, each conſiſting of about 10 or 12 palm-trees. The depth is the ſame as above mentioned, at an equal diſtance from the coaſt.

From Alatar to POONDY the coaſt runs toward the N. E. $5\frac{1}{2}$ leagues, the depths are 12, 15, and 17 fathoms, at $1\frac{1}{2}$ league from the ſhore, ſand mixed with large gravel: cloſe to the ſhore, abreaſt of Poondy river, are 10 or 12 rocks, and within land ſome high indented mountains, which along the coaſt become of a middling height, but equally indented.

From Poondy to BARWA or *Barva*, the bearing is N. E. $\frac{1}{4}$ E. and the diſtance about 5 leagues. To ſail from one to the other, keep about 4 miles offing, in 15 or 16 fathoms, ſandy ground. Barwa hill is high, and round it are ſome hillocks, the moſt remarkable of which is to the ſouthward of the river: to the northward of the hill are ſeveral others like it, but ſomewhat higher.



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From Barwa to GANJAM*, the diſtance is about 12 leagues, the coaſt running N. E. Between the two is the pagoda of Manſurcotta, which ſtands by itſelf, upon a moderate low land, woody and even. To the N. E. of this pagoda appears Carapar hill; though it is not one of the higheſt on the coaſt, yet when it bears N. N. E. it may be known by its ſhape, which repreſents a long tomb, a little ſteep on the ſide next the ſhore, towards which it declines; whereas the more inland hills run off as the coaſt. This different direction makes Carapar hill form an angle with the others, towards the N. W. between which to the ſouthward a plain extends as far as 5 hills, whoſe tops make 5 ſaddles: they are ſeen as you approach Ganjam, whoſe river is broad, and frequented by many of the country-veſſels. To the ſouthward of this river is a fort, and a thicket of palm-trees that ſeems to be of the extent of a cannon-ſhot; coming nearer you diſcover another even at the top like the table of Pettapilly. In all this part you muſt keep an offing of $2\frac{1}{2}$ leagues in 20 or 25 fathoms; nearer, the ſoundings ſhoal very faſt.

From Ganjam to MANNICKPATAM the coaſt runs N. E. 9 leagues. It makes a kind of bight between them, in which there is no good anchoring ground, but about 3 leagues to the ſouthward of Mannickpatam; indeed it ought to be avoided, eſpecially with a S. E. wind.

From Ganjam, the mountains, ſtretching no farther northward, leave between them and the ſhore a plain of reddiſh ſoil, eſpecially near the ſea ſide, and then begins the great Chilka lake, extending along the coaſt about 10 leagues. Off Mannickpatam a bank of ſand projects 2 miles, and ſhoals from 10 fathoms ſuddenly to 4, ſo that you muſt come no nearer than 12 fathoms. The ſoundings are ſandy, a league from the ſhore, and muddy at 2 leagues. Mannickpatam, which ſtands on one of the openings of the Chilka lake, may be ſeen when Carapar hill bears W. S. W. 7 or 8 leagues; it is known by a little pagoda encompaſſed with houſes and other buildings, with ſome large trees.

From Mannickpatam to JAGGERNAUT PAGODA the courſe is E. N. E. $\frac{1}{4}$ E. 5 or 6 leagues: there is no danger along this coaſt, therefore you may keep at what diſtance you think proper, the depth being the ſame as above mentioned, and the land of the ſame colour. Jaggernaut is one of the moſt celebrated pagodas in India; here is a large town, about two leagues from the ſea ſide, which is ſeen far off by the height of its buildings. As ſoon as you are off Mannickpatam, you may perceive the pagoda from the maſt-head; at this diſtance it appears like a large ſhip under ſail; on approaching it, it looks like three pagodas very near each other, the ſouth-weſt one exceeding high and round, with a ſpike and a large ball at the top; the ſecond, which almoſt joins to the firſt, appears leſs round at the top, it has alſo a ſpike and a ball, as has likewiſe the third, which is the leaſt, and round like the firſt. Theſe three pagodas, which ſeem joined together, form a high and broad building.

Four leagues and a half E. N. E. of Jaggernaut Pagoda is the BLACK PAGODA, which

* All this detail between Barwa and Ganjam is not ſo clear as the reſt. Mr. *D'Après*, from whom it is taken, gives the name of Sommaveron to Ganjam, and places Carapar $6\frac{1}{2}$ leagues farther to the N. E. which brings the pagoda of Manſurcotta to the North of Ganjam, inſtead of the South of that place, where it is actually ſituated.



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at a diſtance reſembles (like the former) a large ſhip under ſail; but on a nearer view it loſes its appearance, and becomes leſs in width. When you bring it to bear N. N. E. it looks like two buildings joined at the bottom, and ſeparate aloft, which finiſh in a peak. About a league W. by S. there is another little pagoda, ſtanding like this on an even, reddiſh ground, without trees. This circumſtance is ſufficient to diſtinguiſh the Black Pagoda from that of Jaggernaut: beſides, about a league W. S. W. of the little pagoda, you diſcover between the two former a riſing ground, with ſome trees thinly planted: and though there is another nearly like this, a league beyond Mannickpatam, you cannot miſtake them if you obſerve the diſtance of the one from the Black Pagoda, and its different appearance from that of Jaggernaut.

From the Black Pagoda to Falſe Point they reckon about 18 leagues, the firſt 5 leagues E. by N. the next 3 E. N. E. and the 10 laſt N. E. The coaſt between theſe two places is bordered with a bank that ſtretches $\frac{1}{2}$ a league into the ſea, and in ſome places a little leſs. Off Falſe Point it extends $1\frac{1}{2}$ league. The firſt 4 leagues the land is pretty even, and without any thing remarkable; the 4 following leagues it appears in downs and hillocks, and at the end of theſe 4 laſt leagues runs the little river Marſepour, near which is ſeen a ſmall thicket. Three leagues to the northward there is another ſmall river; the coaſt concaves a little between the two, being very low, as it is for three leagues more northerly; afterwards it ſhews itſelf higher by reaſon of a thick and even wood, which makes it appear more elevated than any you have ſeen from Mannickpatam.

On approaching FALSE POINT you would take it, although it is the main-land, for a little iſland, on account of the want of wood, and of the entrance of a river, which makes a diſcontinuation appear; the part, which is perceived ſeparated is Falſe Point. From this place the coaſt, whoſe direction was N. E. extends to the northward, and more weſterly, forming a great bight. Many navigators, deceived by this appearance, have taken Falſe Point for POINT PALMIRAS, and the miſtake has occaſioned the loſs of ſeveral ſhips. The knowledge of the depth alone is not ſufficient to prevent this error, becauſe upon the eaſt edge of Falſe Point bank, you find for 2 or 3 caſts the ſame as at Point Palmiras, and the bottom of a muddy ſand, gravel, and ſmall flat ſpecks, black and without ſhape, like bruiſed pepper, but with this difference, that at Falſe Point, you are but 2 leagues from the land in 15 or 16 fathoms, and may diſcern the coaſt plainly, which makes in a level declivity; inſtead of which, at Point Palmiras, you find ſuch depth only to the Eaſt of its iſlot, and at 4 leagues from the coaſt, which being much lower is hardly ſeen, 3 ſandy downs to the ſouthward being the only riſings perceived there.

When you come from the offing to make Falſe Point directly, you do not ſee the objects before mentioned, except a thick and even wood, which having nothing of the kind near it, becomes the principal mark. Having ſailed about 4 leagues from Falſe Point, when it bears S. W. there is to the N. E. an opening like the entrance of a middling river.

Off Falſe Point, in 14 or 15 fathoms, the courſe to attain the ſame depth to the eaſtward of Point Palmiras is N. E. 15 or 16 leagues; but you muſt allow for the ebbing and flowing

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of the tides; it is high water at full and change days at 8 o'clock 30 min. the flood ſets to the W. N. W. and N. W. at its beginning, at $\frac{1}{4}$ flood it ſets to the North, and at $\frac{3}{4}$ flood to the N. N. E. and N. E. The ebb runs the contrary way. The beſt depth is to keep in 14 or 15 fathoms, ſoft ground; nevertheleſs, if in this track you ſhould find a different bottom, you need not be ſurpriſed. "About 5 leagues N. E. by E. from Falſe Point, ſteering N. E. I had," ſays Mr. *D'Après*, "ſoundings of red ſand for above 3 leagues, and thence oozy, as far as Point Palmiras." The change of the ſand ſhews you are near the bank, which is fine hard ſand. Eaſt and Weſt of this bank, the ſoundings are ſand, gravel, broken ſhells, and ſpecks without ſhape like bruiſed pepper. You often find, in 17 or 18 fathoms, ſoundings of black and red ooze, with broken ſhells; near the land, in 11 or 12 fathoms, it is ſand and red gravel. When in the night-time you find theſe laſt ſoundings, you may round the bank, ſteering North and N. by W. and when in this courſe you meet with ſoft ground, you will eaſily know whether the bank is doubled, becauſe in ſuch a caſe the depth diminiſhes but $1\frac{1}{4}$ fathom for the ſpace of a league; on the contrary it decreaſes very faſt when it is not doubled. If the winds blow from the weſtward, you may lie cloſe to the bank, in 10 or 11 fathoms, without fear; you have ſoundings of fine ſand, frequently mixed with fine gravel; ſometimes they are unequal, as from 10 to $7\frac{1}{2}$ fathoms. But you muſt beware of coming into 5 fathoms, for then you approach the edge of the bank; and the rocks appear diſtinctly upon the ſhoaleſt part.

Be careful likewiſe not to keep too far off the bank, during the weſterly monſoon, becauſe you run the riſk of loſing ſoundings, by the winds which then blow from that part, and by the currents ſetting to the eaſtward. If this ſhould happen, you muſt loſe your paſſage, and will be obliged to winter at Chittagong, whence you cannot get out till November or December.

On the contrary, when the winds blow from South to S. E. as it often happens in April, May, and June, you may keep in 16 or 17 fathoms, till you have doubled the outermoſt part of the bank.

The iſlot off Point Palmiras is very diſcernible in coming from the ſouthward, appearing very diſtant from it, though not above $\frac{1}{2}$ a league at moſt. If you are got down within the bight between Falſe Point and this ſmall iſland, ſo that it bears to the eaſtward of North, you muſt directly haul off, to keep clear of an elbow of the bank, which runs out 2 leagues to the S. E. by E. of this ſame iſland: you may approach it in 12 fathoms, but come nothing under. In caſe of a ſoutherly wind this inſtruction is much more uſeful than in any other caſe, becauſe then you would have the greateſt difficulty to get clear of it.

About 16 or 17 leagues S. E. by E. from Point Palmiras, and about 21 eaſt of Falſe Point lies the SCHIEDAM SHOAL *and* ROCK; Captain *La Touche*, who firſt mentioned it, ſays that a Daniſh captain aſſured him he had ſeen this ſhoal dry, and that having been carried off the coaſt by a gale of wind, the depth increaſed upon him to 60 fathoms, and afterwards diminiſhed by little and little to the ſight of it. "This ſhoal," adds M. *D'Après*, "has been ſearched for accordingly, but could not be found; however, it cannot be amiſs to keep the lead going."

INSTRUCTIONS

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## INSTRUCTIONS FOR SAILING ROUND POINT PALMIRAS, TO AVOID FALLING INTO FALSE BAY, OR MISTAKING FALSE BAY FOR BALLASORE ROADS.

By SAMUEL WELLER, Commander of the SNOW AMAZON Country-ship, 1785.

"AS the miſtaking Point Palmiras for the Falſe Point, or this Point for the former, is ſometimes attended with fatal conſequences, either in falling in with the dangerous reefs to the eaſtward, or in getting imbayed in Falſe Bay; to avoid ſuch a miſtake, it is to be obſerved that between the two points, and all acroſs Falſe Bay, you will meet with oozy ground, of a greeniſh colour, very ſoft; but any where to the northward of Point Palmiras, having the Bay of Ballaſore open, you will have ſtiff ground, a bluiſh clay, with variety of mixtures; as you change your ſituation, the ſame ground, with ſand and ſhells, and farther to the northward, with gravel, iron-ſtones, rotten-ſtones, and ſmall pebbles: ſome of theſe mixtures are found all the bay over, and become ſufficient to aſcertain whether you are to the northward, or the ſouthward of Point Palmiras.

"But, for greater ſafety, all ſhips bound to the Roads, ought to make the land to the Southward, about Pondy, or Jaggernaut Pagoda; if the weather ſhould be hazy, as it generally happens in the months of April, May, and June, and the land cannot be ſeen, they muſt endeavour to get ſoundings, by their latitude, to the ſouthward of Falſe Point, keeping in from 15 to 18 fathoms, and cannot miſs the ſoundings off Falſe Point, which are coarſe ſand and gravel-ſtones, with black ſpecks; the land about Falſe Point is very low, and if you chance to ſee it, has nothing by which you may diſtinguiſh it, but its forming a point and trenching to the ſouthward. But ſhould you be cloſe in Falſe Bay, you may diſcover two ſmall ſand-hills cloſe together, by which it can be known.

"From Falſe Point to round the reef off Point Palmiras the courſe is N. E. by E. 9 or 10 leagues.

In falling off the land-ground off Falſe Point, you have ſoft ooze, as it has been already obſerved, and with the above courſe will hold your water with little or no variation, until you come on with the reef of the true point: the firſt coming on is light fine ſand; farther on coarſe ſand, gravel-ſtones, and black ſpecks; theſe are the ſoundings of the reef.

"Obſerve as you fall off the reef, you will deepen your water; then haul two or three points more to the northward, until you get the ſtiff ground before-mentioned, or ſtiff clay, with ſtones, ſand, or ſhells: you may then conclude you have the bay open, and ſtand in boldly N. N. W. for the Roads, having regard to the tides, which flow there N. W. ebb S. E. full and change. If you round the reef in 17 fathoms, which I think the firſt water you will have, 7 or 8 leagues; run into 9 fathoms, where the Pilots' ſchooners generally lie, ſhoaling very gradually as you run in, and will find the ground as before deſcribed: only ſhould you be well to the weſtward, and the dry ſand-bank of the true point bearing S. W. you will meet with a ſpot of bright yellow clay, like oker, with ſmall pebble-ſtones; but this is far to the weſtward of the common track.

Should it happen, as in ſome ſeaſons of the year, that all veſſels have left the Roads, and you

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you are obliged to ſend your boat into Ballaſore, to acquaint the company's factor of your arrival; run in at low water with your ſhip into 6 or 7 fathoms, and bring the flag-ſtaff of Bulkramgurry, or the Bankſhall-houſe to bear N. N. W. (as ſaid before) then anchor, and diſpatch your boat, or fire guns until notice is taken. *N. B.* Your boat ſhould not be ſent before the firſt quarter flood, as in the S. W. Monſoon the ſea breaks much on Ballaſore bar."

## DIRECTIONS FROM POINT PALMIRAS TO THE ROADS OF BALLASORE AND PIPLEY, OR PEPLY.

HAVING doubled the bank or reef of Point Palmiras, when the iſlet bears W. by S. a little ſoutherly, the beſt courſe to go to anchor in BALLASORE ROADS in 5 fathoms, at low water, is N. N. W. about 9 leagues. You ſhould be careful to obſerve which way the wind blows, in order to make ſure of this courſe, becauſe in the weſterly winds you muſt keep your luff to avoid falling to leeward of the road; the coaſt therefore muſt be kept on board in 7 or 8 fathoms, but you may approach the road in 6. You meet no danger in this bay, but the bank of Kannaka, which breaks at low water, and on its edge has 5 fathoms, hard ſand. The weſt coaſt is planted with trees all along, except for the ſpace of a ſmall league to the weſtward of the river: this part, void of trees, ſerves to ſhew its entrance, which has on the weſt ſide a little white houſe (the Engliſh bankſhall, or ſtorehouſe); on the eaſt ſide are ſome ſand-downs, behind which you ſee plainly a little wood when you go too far to the eaſtward of the entrance.

The marks for good anchorage, when the *Nelgringe* or *Nilgur Hills* can be ſeen, are 1ſt, the end of the Long Hill to the ſouth-weſtward of the others, W. $\frac{1}{2}$ S. 2d, The Middle one, which appears the higheſt, and is ſeparated from the reſt, W. N. W. $\frac{1}{2}$ W. 3d, The Little one on the north-eaſt ſide, N. W. by N. the entrance of the river North and N. by W.

It flows in Ballaſore Roads at full and change, S. S. E. and N. N. W. or $\frac{1}{2}$ an hour paſt 10 o'clock. The ſea riſes here 10 feet in the ſpring, and 7 in the neap tides. The ſhips that intend to anchor in 5 fathoms, at low water, ought to pay great regard to this.

If in cloudy weather (when the Nilgur Hills cannot be ſeen, and the entrance of the river is hardly diſtinguiſhed) you ſeek the 5 fathoms, becauſe in this depth you are at leaſt 4 leagues off ſhore, you muſt then have recourſe to the marks already indicated, that is to ſay, the diſcontinuation of the trees to the weſtward, and the downs that lie along the eaſtern bank, by which this birth may be known.

It is reckoned about 9 leagues E. by N. and E. N. E. from Ballaſore Roads to PIPLEY or PEPLY ROAD: in this track you keep in 6 fathoms, at low water. Peply is known by a pagoda to the weſtward of the river, and a thicket of trees very near it, which are ſufficient to diſtinguiſh it; if you cannot ſee the pagoda, you muſt bring them to bear N. W. by N. in order to get into good anchoring ground.

It is computed 4 leagues from the anchoring place of Peply to the firſt brace or channel to enter the Ganges, or Hughly river.

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The ſhips bound up the Ganges are not always obliged to anchor in Ballaſore Roads for pilots, becauſe you frequently meet their boats as ſoon as you have doubled Point Palmiras. Each nation have their own, nor is it proper to uſe them promiſcuouſly, or not to give the preference to thoſe of your nation; ſuch accidents have happened to commanders who have truſted the pilots too far at firſt ſight, that the greateſt caution is required in their choice.

## INSTRUCTIONS FOR SAILING ROUND THE REEF OFF POINT PALMIRAS, INTO BALLASORE ROADS AND OVER THE BAR.

By JONATHAN RANSON, Pilot.

"THOSE who deſign for Bengal, in May, ought to time their departure from the coaſt ſo as to get down before the 25th, otherwiſe, without neceſſity requires it, I would ſee the beſt part of June over, ſo as to round Point Palmiras before the 25th of June; by which means you may avoid the bad weather, which generally happens in that interval of time. During theſe months, along the Coaſt of Oriſſa, and in Ballaſore Roads the winds, blow hardeſt at S. S. W. and S. W. the air being ſo very thick and hazy, that ſometimes you muſt be very near the land to ſee it.

"The bad weather, which happens at this time, is generally preceded by fine clear weather, and light winds, unſettled and varying all round the compaſs, till they fix in the N. E. quarter, contrary to the Monſoons. Theſe gales will laſt ſometimes 3 or 4 days, with rain and thick weather, though ſome years are much more favourable than others.

"Theſe winds and bad weather do not reach far up the coaſt, for which reaſon, it is ſafer, when you ſee the appearance of the tornadoes, to put to ſea, if the wind will permit, much rather than to attempt to ride it out in Ballaſore Roads. In ſuch a caſe conſult the pilot, if aboard, taking due care to keep in ſoundings off the coaſt, after you have rounded Point Palmiras, becauſe the current, at this time of the year, ſets ſtrong off the coaſt, and you might find it difficult to get in again.

"You ought to avoid coming into Ballaſore Roads, betwixt the latter end of May, and the latter end of June; and from the latter end of September to the latter end of October, which laſt is generally the breaking up of the S. W. Monſoon; though ſome years it does not break up before November, but that is not very common.

"It is not proper to attempt to cruiſe, or lay off Point Palmiras, or any where to the ſouthward of it, before the current begins to ſhift to the ſouthward, which is about the middle of July, after which ſhips may ply to windward. In Auguſt the current off the Point, and along the coaſt to the ſouthward, runs ſo very ſtrong, that ſometimes it will require a three knot gale to ſtem it: this is a ſoutherly current. As moſt people endeavour, when bound to Bengal, to make Jaggernaut pagoda, or ſtrike ſoundings off thereabouts, you cannot lay out of their track ſomewhere betwixt Point Palmiras, and 15

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or 20 leagues to the ſouthward of it; but in my opinion it is beſt to lay off Falſe Point in 25 or 15 fathoms.

" About the middle of September, it is time to think of a harbour, to avoid the Monſoons breaking up upon you. It is common for moſt ſhips bound to Ballaſore Roads, to get ſoundings off FALSE POINT, which, in clear weather, may be ſeen off deck in 15 fathoms, being low land with trees; and about 2 leagues to the northward, in the bay, are two very remarkable ſand hills. The ſoundings off Falſe Point differ very little from thoſe off Point Palmiras. The courſe from the former, in 15 fathoms water, is N. E. by E. about 14 leagues. Between the two points, the land is lying in. Steering the above courſe, you will come into 16 or 17 fathoms, ſand, ſhells, and ſmall ſtones: by the ſoundings and the depths of water, you may conclude you are off the true point. Captain *Barton* gives an additional rule to know the true from the falſe point: that is, if you are off Falſe Point, and ſteer N. E. you will ſhoal your water, but after you are paſt the true point, you will immediately deepen, by ſteering N. E. which is no more than to ſay, that if by ſteering N. E. you deepen your water you muſt haul up, and if by hauling up N. N. W. you keep your depth of water, you are round the true point.

" Note. The Falſe Point appears like a ſmall iſland; the ſoundings ſoft and oozy; the beſt depth to keep in is 16 fathoms.

" The courſe from Point Palmiras to the ROADS is N. N. W. 9 or 10 leagues, due regard being had to the tides. It flows in the road 10 o'clock, on full and change.

" From the latter end of June to the latter end of November, off the point there is little or no flood, only on the ſprings; but, on the contrary, a ſtrong outſet, occaſioned by freſhes of the rivers, which runs very ſtrong round the point, as obſerved before. If it ſhould happen, in the night or thick weather, that you have hauled up too ſoon for the roads, you will find it by the ſhoaling of the water faſter than ordinary; for in the right track you will ſhoal very gradually: in ſuch a caſe haul off a little, keeping in 15 or 16 fathoms, until you find a ſtiff bluiſh coloured clay, mixed with ſand and ſtones, to come up with your lead; or there is a ſpot, though not always met with, of yellowiſh clay and ſtones; and by either of theſe two grounds, you may know yourſelf to be to the northward of the true point, and can haul boldly for the roads. What I have ſaid above to round the point, may be ſafely practiſed either by night or day; but if you have day light, and fine clear weather, ſo that you can ſee the point and breakers, you may round it in 12 or 14 fathoms with ſafety, in caſe you have a bold wind to borrow.

" As many people have miſtaken Falſe Point for the true Point Palmiras, by which means they have got into Falſe Bay, before they have found it out; and ſome, on the contrary, by taking Point Palmiras for the Falſe Point, have got among the ſands before they knew where either of them was, by truſting too much to the log; to prevent theſe miſtakes, make uſe of the following remarks:

" Betwixt the two points, in the Falſe Bay, you will find a very ſoft ooze, as I have ſaid before; and to the ſouthward, or any where within the true point, it is a ſtiff mixed ground of bluiſh clay, with ſand and broken ſhells, likewiſe ſtones in ſome parts.



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"If you ſhould happen to be among the ſands, with a ſtrong flood tide, you muſt immediately anchor, and wait for the ebb. You may know the SEA-REEFS by the ſoundings; the lead ſticks hard upon them, bringing up ſilver ſpecks: they are ſo hard on the tide of ebb, that your lead will rebound, as from a rock. Both Eaſtern Sea-reef and Weſtern, as well as the Braces, have the ſame.

"In the channel, betwixt the ſands, you will find ſoft muddy ground, and about 3 fathoms water more than over the reef.

"If you intend to weigh with the ebb of the ſoutherly current, ſtand to the weſtward; but in the S. W. Monſoon come in no leſs water on the reef than 7 or 8 fathoms, by reaſon of the great ſea that runs upon it. But ſhould you be ſo far in as to have leſs water over it, it would be better to tack, and work out between the ſands, until you get into 12 or 14 fathoms, and as you have the wind, direct your courſe for Ballaſore Roads: and come in no leſs water till you judge yourſelf at the Weſtern Sea-reef.

"As it ſometimes happens you may have occaſion to ſend a boat in, over Ballaſore Bar, obſerve the following directions, *viz.* Bring the flag-ſtaff at *Bullramgurry*, or the Bankſhall-houſe, to bear N. N. W. by a *compaſs* in the boat: keeping it at that bearing all the way in, it will lead you to the outward beacons, being poles ſet upon each ſide the entrance of the BAR. From hence the channel lies directly towards the ſouth-weſt point of the opening of the river, where, at convenient diſtances, are the like marks ſet up on the extremity of the ſhoal, one on each ſide. Upon the bar, at low water ſpring tides, in the dry ſeaſons, there is not above 2 or 3 feet water; it flows 16 feet perpendicular, and 10 o'clock makes a full ſea, at full and change. To avoid running any riſk, it will be neceſſary to caution the officer who goes in the boat, to wait for the laſt quarter flood to carry him over, by reaſon the firſt quarter the ſea breaks very high."

## DIRECTIONS FOR SAILING FROM THE COAST OF COROMANDEL TO BENGAL, AT DIFFERENT SEASONS OF THE YEAR.

THE moſt favourable time for ſailing to Bengal, is from the end of February to the middle of September; if you depart from the Coromandel coaſt towards the end of February, and during the month of March, it is neceſſary to keep a good offing, in order to reap the advantage of the South and S. S. W. winds that blow here; whereas near the coaſt they often vary from N. E. to S. E. Then ſhape your courſe to make the Coaſt of Oriſſa, in about the latitude of 19°, and coaſt it from thence to Point Palmiras.

The ſhips that ſail in this ſeaſon, from the Malabar coaſt to Bengal, without touching at any place on that of Coromandel, ought to keep the iſland of Ceylon on board, as far as Batecalo, and thence make a ſtretch to the coaſt of Oriſſa, as above.

During the months of April and May, when the winds blow more frequently from the ſouthward, and are in their full force, you muſt, in like manner, make the Coaſt of Oriſſa, guarding particularly againſt the currents (which ſet northward and commonly with the wind) and keep a good offing, as ſoon as you experience them; becauſe with S. E. winds you will be

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be troubled to clear the coaſt, if you follow the different bights which it makes. When you ſee Jaggernaut Pagoda, keep in from 15 to 20 fathoms as far as the reef off Point Palmiras, which you muſt not approach nearer than to 18 fathoms.

As the weſterly Monſoon is at its height in June, July, and Auguſt, it is neceſſary to keep more to windward than in the preceding months; that is to ſay, to make the coaſt in 18° 30′. This precaution is the more requiſite, as you may be often miſtaken in the eſtimation of your courſe, by the currents, which generally are governed by the direction and force of the winds; and this is the reaſon that ſhips fall in with the land more eaſterly than they imagine. When you are within ſight of the land, keep in between 12 and 16 fathoms, and for the reſt conform to the directions above; particularly concerning the reef off Point Palmiras, which you muſt keep well aboard*.

If you ſail from Madras to Bengal after the 10th of September, the following general inſtructions will direct you.

Steer firſt E. N. E. 100 miles, and then N. E. by E. 200 miles. If you find the S. W. monſoon ſtrong, ſteer a courſe to carry you directly to Point Palmiras.

You will make about 7° 10′ eaſting, if you have no eaſterly current; and with the above direction you will ſtrike ground in latitude 20° 20′. Should you find a ſoutherly current, you may ſafely reckon yourſelf at no great diſtance from the ſhore, and keeping at two degrees off, you have little or no ſtream either way. After you have made 7° M. diſtance in latitude 20° 20′, you will have ground at 70, 80, or 90 fathoms: if gray ſand mixed, be certain that you are to the eaſtward of Point Palmiras, and if after it, you get inſhore in 17, 18, 19 fathoms, you may depend it is the true point.

But the following inſtructions, by Capt. *Harriſon*, will be found more particular.

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" Ships who ſail from the Coromandel coaſt to Bengal, after the latter end of September, or beginning of October, muſt make the beſt of their way to the eaſtward, till they get 4° or 5° M. diſtance, and then, if the wind will permit, they may ſteer E. N. E. till they have made altogether 10° eaſting. Then they are to work to the N. E. endeavouring to make the Coaſt of ARRACAN, or the iſlands near it, in 18° or 19° latitude North.

" The meridional diſtance you will make is very uncertain, perhaps 11° or 12°, and frequently a great deal more. You are to obſerve, in caſe the wind proves contrary, not to work to the ſouthward of Negrais; but if the wind is northerly, ſtand to eaſtward of it, and if eaſterly, to the northward; not ſo long, however, as to endanger your coming on the coaſt of this ſide Palmiras; for if you do, there will be little probability of your getting your paſſage, as the N. E. winds will be more conſtant, and the current ſtronger to the ſouthward. The Coaſt of Arracan and the iſlands are very bold; you may coaſt along ſhore, having very regular ſoundings to 6 fathoms, moſtly ſoft mud and ſand. We made

* Hard GALES are not uncommon in the weſterly Monſoon, and Captain *George Williams* gives us the following prognoſtics of one at this ſeaſon. " If you find," ſays he, " the S. W. wind die away, and you have light airs all round the compaſs, with intermittent calms; the weather being clearer than common all round the horizon, objects looming, a murmuring like wind in the rigging, a very ſmooth ſea, and cobweb ſtreaks in the rigging, then you may expect a hard gale."



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land in 18° 54′, coaſting until we were in 21° 32′, and obſerved the nearer we ran along ſhore, the more regular was the current, or rather tide, for it ſets 6 hours to the northward and 6 to the ſouthward; whereas, in the offing, it ran ſtronger and longer to the ſouthward than to the northward. In 20° 30′ latitude North, there is a ſmall low iſland, which runs from the main 3 or 4 leagues; and when you are the ſame diſtance to the weſtward of it, you have uneven ſoundings: from the northernmoſt part of this iſland runs a chain of rocks quite to the main; and at a great diſtance it makes like a veſſel under the land at an anchor. After you get in with the coaſt, and have ſoundings, take care not to get out of them again, for ſhould it fall calm, or the wind ſpring up at N. E. you would find it very difficult to get the land on board again, by reaſon of the ſtrong ſoutherly and weſterly currents: therefore, work along ſhore, where you have faint airs variable, and obſerve your drift, by the lead; for trying your current by the boat is not ſo certain, as it frequently ſets, one on the ſurface and another below the water*; this occaſions ſuch ſtrong eddies, that you will not be able to ſteer your ſhip when there is wind enough to go 2 knots.

" After making the Coaſt of Arracan, and working along in ſoundings, when you come in the latitude of 21° 15′ North, or thereabouts, you will meet with a *Swatch*, where you loſe them for a ſhort time. Make the beſt of your way over it, and when you have croſſed it you will ſhoal your water pretty faſt, perhaps to 9 or 10 fathoms, but come no nearer; eſpecially if you have hard ground, haul off to the ſouthward, till you ſoften again. This is a good mark to know you are near the tail of the ſands. From this keep along in between 12 and 20 fathoms, keeping your lead going, with tallow on in, and likely you will have ſome caſts with ſandy ground; if you meet with glittering ſand, you are on the tail of the EASTERN SEA REEF; it ſhoals gradually upon it, therefore do not be ſurpriſed; but if you have ſandy ground, under 14 fathoms, it is well to heave till you deepen again, working along in this manner. When you come paſt the tail of the WESTERN SEA REEF, and near Ballaſore Roads, you will, if clear weather, ſee the *Nilgur Hills*, bearing W. by N. ½ N. and N. W. ½ W. if ſo, there being a flat, which you will plainly diſcern to bear N. W. in 10 fathoms water, you are in the roads: but in the night-time, or in cloudy weather, you will know when you are in the roads, by the ſtiff mud, intermixed with large ſtones, ſome of them hard, others ſoft, which you may break with your teeth. Work along to the weſtward, obſerving your tides, till you come into 10 fathoms, when you muſt anchor. If you have no pilot, it will be neceſſary to fire a gun once or twice, night and day, by which means any pilot ſloop that is in the roads may come to you."

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To theſe directions of Captain *Harriſon* muſt be ſubjoined the following ones by Captain *George Williams*. " If by any unforeſeen event," ſays this officer, " you fall in with the land to the ſouthward of the Falſe Point, you riſk the loſs of your paſſage, or a very great delay, for want of favourable winds to get to the northward and ſtem the violent currents, which ſet S. W. from the latter end of September till February; but their greateſt

* This appears to be againſt all the laws of Hydroſtatics.

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force is in November and December, when they run 3 miles an hour. It is therefore beſt for a ſhip ſo circumſtanced, if ſhe would double Point Palmiras, to take advantage of the tides, by anchoring when they make againſt her.

" The following courſes have never failed obtaining a paſſage ſo late as the latter end of September, *viz.* E. by N. about 150 miles, E. N. E. 140, N. E. by E. 120, N. E. 90, N. E. by N. 180; then North till you ſtrike ſoundings in 40 or 50 fathoms, which will then be 100 miles E. by N. or E. $\frac{1}{4}$ N. from Point Palmiras. But ſome ſhips have taken a wider range, and ſtood from Madras, *viz.* E. by N. 153 miles, E. N. E. 258, N. E. by E. 187, N. N. E. 204, and North till they ſtruck ſoundings in 40 or 50 fathoms, which will bring Point Palmiras nearly E. N. E. 180 miles diſtant. She muſt then coaſt along the heads of the ſands weſtward to Ballaſore, and obſerve, if it happens to be light airs or calms, to anchor, leſt the currents ſet her to the ſouthward, and ſhe loſes her paſſage.

" But a ſhip, which leaves Madras late in October, ought to take a ſtill wider range than in September; ſhe ſhould therefore ſteer, if the wind permits, Eaſt 2° $\frac{1}{4}$—E. N. E. 3° $\frac{1}{2}$—N. by E. 3°, and then N. E. till ſhe ſees the Coaſt of Arracan; on this coaſt ſhe will have ſtrong S. W. winds; ſhe muſt avoid that ſhore, and ſteer N. N. E.—North, and N. N. W. till in ſoundings; and then along the ſand heads as above, ſhe will keep ſight of the ſhore all the way.

" The courſe from the Negrais to Arracan river ſtretches about North to N. by W. From the Broken Iſlands of Arracan to Sun diva or Sun deep, and to the Sagor Sands W. by S. and W. S. W. but when paſt Sagor, the coaſt where the pilot ſloops lie from October to January, runs W. by N. and W. N. W. The diſtance between Arracan river and Point Palmiras is about 100 leagues, and the whole bottom of the Bay of Bengal, from Sun diva Iſlands to Sagor, is low ſwampy ground, covered with buſhes, and interſected with many creeks by which the Ganges diſcharges itſelf.

" Within the Iſland Cheduba, there is a good paſſage for any ſhips; freſh water is to be had here (looking well after the natives) and both that iſland, and thoſe off Arracan river, yield good ſhelter to ſhips in bad weather—obſerve in working on this coaſt, to keep ſome anchors clear, a good look out, and the lead going. If a ſhip ſhould be in want of water, or in bad weather, they may anchor under, or within Cheduba, or Barongo (the Broken) iſlands in the mouth of Arracan river, where the channel is deep and good, as the wind and their ſituation will admit.

" But ſhips upon this coaſt, bound to Bengal, between the middle of October and the middle of December, not wanting water, and the weather tolerable, had beſt ſtand along ſhore at 8, 9, or 10 leagues diſtance, which will keep them in 25 fathoms water, until they get the height of the Arracan iſlands in latitude from 19° to 20° North; and then edge off N. W. or rather N. W. by W. They will deepen their water, and perhaps, though ſeldom, loſe ſoundings: however by ſailing 20 or 30 leagues, they will again come into them. Let them hold on to the N. W. till they get into 18 or 20 fathoms, then keep her W. by S. and W. S. W. which will carry them in much the ſame depth, till they reach the deep channel

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channel of the Ganges. They will then be about 2° weſtward of Arracan, in latitude 21° or 21° 20′ North, and then perhaps the water will ſuddenly deepen to 30, 40, or 50 fathoms, then no ground. This is not to be regarded, but keep on W. by S. and in ſailing 6 or 7 miles farther, they will again have 18 or 20 fathoms, on which they are to hold on this courſe till they again deepen their water: then you may reſt aſſured that you are paſt Sagor ſands, and ſhould directly haul up N. W. or N. W. by N. until you get into 13 fathoms; ſteer afterwards W. N. W. W. by N. and that will lead to the track where the pilot ſloops lie, in 9 fathoms, to which depth you will come by a very gradual decreaſe, all ſoft ground, though ſometimes mixed with ſand, ſhells, and rotten ſtones that eaſily crumble.

" And obſerve, that ſhips bound this track, ought not, at any ſeaſon, to keep too near the Arracan ſhore, becauſe with a N. W. wind they will be obliged to anchor, if inſhore; whereas by being 8 or 10 leagues off they can make a good ſtretch to the N. E. or N. N. E. and this is more eſpecially wrong in October, or later to December, becauſe in October there are often ſoutherly winds in the bay; beſides if the coaſt be once ſeen, it can always be reached again, for there is little or no current ſetting from it, and late in December the current is quite done all over the bottom of the bay; ſo that ſhould a ſhip fall to leeward of Palmiras, ſhe can eaſily work round to Ballaſore Roads, provided ſhe keeps cloſe to the ſhore and makes uſe of the tides.

" *Note.* The courſes above-mentioned are to be underſtood as true courſes, therefore ſhips ought to be careful in obſerving the ſet of the current ſo as to ſhape a true courſe. The true ſet of the current can be nearly aſcertained by obſerving how the lead line grows from the ſhip after veering out a good deal of line.

" The Arracan coaſt is pretty high land, and plainly ſeen at 10 leagues diſtance."

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The obſervations of Captain *Hicks*, on the track of his ſhip the *Babar* (bound from Madras to Bengal in the contrary Monſoon), will be found no leſs uſeful than the preceding inſtructions.

" The *Babar* ſailed the 27th of October, 1770, and arrived in Ballaſore Roads to the pilot the 25th November following. When ſhe put to ſea from Madras the wind was from the northward, but very little of it; yet with all ſails ſet, went from 1 to 2 knots, ſteering Eaſt, and continued to do ſo all along the Coaſt of Coromandel; but ſo ſtrong did the current ſet in on that coaſt, that ſhe never could get above 4 leagues off ſhore, till ſhe paſſed the Friar's hood on Ceylon, and even ſet ſo near in at Allemparva, that her anchors were got ready to bring up.—It may be obſerved that on the north-eaſt coaſt of Ceylon, where ſhe was becalmed for a whole day, the ſhip drove entirely by the current in 24 hours 90′ on a S. E. by S. direction; and from loſing ſight of Ceylon till ſhe reached the ſand heads, experienced little or no current any way.

" Had this paſſage been made one month later in the ſeaſon, it would have been neceſſary perhaps to have croſſed the Line, to run down the eaſting; as by the end of November.

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ber the North and N. W. winds have ceaſed to blow to the northward of the Equator, and are ſcarcely ever ſooner met than in one degree ſouth latitude. And this the ſame ſhip had experienced the year before from Bombay to Bengal. She left the former port, December 5th; on the 10th took a departure from Cape Comorin, ſteering with the wind on the beam, and ſtudding-ſails ſet the whole paſſage, when the weather would admit of ſuch ſails being out; croſſed the Line the 20th; in 50′ South met northerly and N. W. winds ſtrong; went no farther out than 1° 15′ South; ran down 16° eaſting to the ſouthward of the Line; croſſed it again on the 26th of December, and on the 26th of January following moored at Calcutta.

"It may be proper to obſerve that the *Bahar* did not in that track keep in with the eaſtern ſhore of the Bay; but from the latitude of the Negrais, and about one degree Weſt from it, ſhe ſtood from it (wind varying from the N. E. to N. N. E.) to the Coaſt of Oriſſa, and made the high land of Mannickpatam the 17th of January; ſo that ſhe was 11 days from Bombay to Cape Comorin; 4 days from thence to the Line; 6 days South of the Line; 22 from the Line to the high land of Mannickpatam; and 9 days from thence to her moorings at the town.—*N. B.* When ſhe took her departure from Cape Comorin, though the wind was at N. E. and N. E. by N. ſhe ſteered S. S. E. and South to avoid ſeeing Ceylon, or to be entangled with the baffling winds which ſurround that iſland for a ſpace of 15 leagues."

## DIRECTIONS FOR SAILING FROM BENGAL TO MADRAS, AND THE COAST OF COROMANDEL, &c.

FROM the middle of Auguſt to April, you may ſail from Bengal to any part of the Bay; but earlier or later it is very difficult to get out of the river; and though ſhips, which are going only eaſtward or ſouthward, may ſail 10 or 15 days later, yet thoſe who put to ſea after the beginning of April, for the Coaſt of Coromandel, will find it difficult to go to the weſtward, and perhaps loſe their paſſage.

In ſailing from Bengal to the Coaſt of Coromandel, in Auguſt or September, you will meet with unſettled weather, ſometimes moderate and fair; ſometimes accompanied with hard ſqualls, thunder and heavy rains; the winds being uſually from S. S. W. to W. N. W. and now and then S. S. E. Ships ſhould, therefore, keep cloſe along the Coaſts of Oriſſa, and Golconda, from 15 to 30 fathoms, for the benefit of the currents which begin to run there to the S. W. The wind, often blowing from the land, renders it difficult to keep near the ſhore, eſpecially between Vizagapatam and Arimegon; beſides, ſtanding off ſhore, is ſometimes very advantageous; however, a ſhip ought ſeldom or never to go out of ſoundings. Early ſhips will have ſometimes little or no current, and thoſe who ſail later will find alſo the current fail, when ſouthward of 7° North; but if they keep near the ſhore, there is none againſt them, (except perhaps a freſh out of the adjacent rivers) and the winds are ſufficiently variable, to get the paſſage. They muſt ſeize every opportunity, and tack as often and quickly as it is required by the changing of the wind.—*Note*, By going cloſe along ſhore,

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ſhore, it is not meant you ſhould round the Bays of Coringa, Maſulipatam, and Pettapilly; you muſt on the contrary thwart them from point to point.

During the months of October and November, the navigation ſhould be much the ſame as in September; but no ſhips go from Bengal to the Coromandel coaſt in thoſe months, becauſe the ſtrong N. E. winds, ſea and currents, render it extremely dangerous. Though ſome ſhips, on extraordinary occaſions, have rid out the whole Monſoon in 12 or 20 fathoms, yet it can anſwer no commercial purpoſe; and none ought to be on the coaſt from the beginning of October to the latter end of December.

Between the 10th and 15th of December is ſoon enough to leave the mouth of Bengal River for Madras, and from that time to the middle of January, the beſt courſe is to the S. W. directly to make Arimegon Hill. As the ſhip approaches the coaſt, ſhe will probably have freſh gales, and a ſtrong current to the ſouthward; therefore keep the lead going, and a good look out. Arimegon Hill, in clear weather, will be ſeen when your ſhip is 2 or 3 leagues without the north end of Arimegon Shoal; but that ſand being very ſteep-to, it is dangerous to run in with it, when dark: whoever does, ſhould go ſlanting with the ſand S. W. by S. or S. S. W. under an eaſy ſail, caſting the lead every mile, and the moment you ſtrike ground, haul off ſhore till clear of it. No ſtranger ought to go within the Arimegon Shoal, at this ſeaſon, the channel being too narrow, as we have already ſaid.

If a ſhip in the evening is ſhort of Madras, it is better to anchor than to lie to; but if the ſea is too great, turn to windward, it will ſave lee way.

At this ſeaſon it is beſt to anchor in 9 or 10 fathoms, Madras flag-ſtaff Weſt; becauſe the boats, being light when they come off, can eaſily row againſt the wind along ſhore, and go aſhore loaden, with a large wind; which they could not do if the wind was much ſouthward.—*Note*, Anchoring to the eaſtward of the port, is to be obſerved at every port on this coaſt.

Early in January, a ſhip will find much the ſame currents and winds as in December, but more moderate: ſhe ought alſo to follow the ſame track, except the eaſterly winds ſhould be very faint; in which caſe it is beſt to keep more to the ſouthward, and not go within 20 leagues of the land, until the latitude of Madras, and then run Weſt for the road. This ought chiefly to be done, if the ſhip leaves the pilot in January; but whether ſhe leaves him early or late, if by meeting with light winds, ſhe ſteers ſome days S. S. W. or S. by W. and the winds ſhould afterwards begin to blow freſh from N. E. perhaps in 16° or 14° north latitude, it is beſt for her to ſteer away Weſt—W. by S. or W. S. W. ſo as to fall in with Pullycate, or rather with the ſouth end of Arimegon Shoal, eſpecially if it blows very hard, and is like to continue.

The month of February is the fineſt in the year, through all the Bay of Bengal: ſhips, in the middle or eaſtern parts of the bay, are generally ſure of fine breezes from the eaſtward and northward; and near the weſtern ſhores, of land and ſea-breezes, or moderate gales from the W. N. W. to S. W. therefore, thoſe who are bound to the Coaſt of Coromandel, in this month, from Bengal, Oriſſa, or Golconda, ſhould keep well off ſhore, to avoid

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avoid the calms, land and ſea-breezes, and N. E. currents which then prevail from Ceylon to Ballaſore. In ſailing from Bengal, if early in the month, it is beſt to ſteer S. by W.—S. S. W.—S. W.—W. S. W. and Weſt; and if it blows freſh from the N. E. to fall in directly for your port. But it will generally be better to run near the coaſt 8 or 10 leagues to the ſouthward of the port, becauſe you are always ſure to get back; beſides, on getting ſoundings, or ſeeing the land from the maſt-head, the ſhip can eaſily reach her port, by hauling upon a wind W. N. W.—N. W. or N. N. W. as the latitude requires. Late in February, it is beſt to ſteer from the pilot South for ſome days, then S. by W.—S. S. W. and S. W. &c. ſo as to fall in 20 or 30 leagues to the ſouthward of the intended port; for about the time you approach the coaſt, not only the northerly currents run ſtrong, but the S. W. wind begins to prevail along ſhore; therefore you muſt expect being obliged, when near the land, to ſteer W. N. W. or perhaps N. W. cloſe hauled with a leeward current, and you are to make allowance accordingly, by keeping well to the ſouthward in the offing, while it is in your power.

Ships bound from Bengal to any part of Oriſſa, or Golconda, ought, in the ſame manner, to keep off ſhore, till they are to the ſouthward of their port, according as it is late or early, and the N. E. wind freſh or faint.

Ships that leave Bengal, in March or April, for the Coromandel coaſt, ought more eſpecially to avoid going to the weſtward at firſt. Their beſt track, ſuppoſing the wind fair, is S. by E. and South, keeping about 15 or 20 leagues to the eaſtward of the meridian of Point Palmiras, till in 13° or 12° north latitude, and then S. S. W. and S. W. till they ſee Ceylon about Batecalo. But as the S. W. winds range the Coaſt of Oriſſa, at this ſeaſon, inſtead of a fair wind, ſhips uſually leave the pilot with a freſh gale between W. S. W. and South. In this caſe the beſt way is to ſteer, cloſe hauled, to the S. S. E. or even E. S. E. as the wind will permit, rather than tack. Theſe courſes will, in a few days, bring them into light breezes, generally from the N. E. quarter, with which they ought to ſteer South—S. by W.—S. S. W. &c. till they ſee Ceylon as above. The winds will ſometimes continue ſo long in the S. W. quarter, that a ſhip will be 3° or 4° to the eaſtward of Point Palmiras, before they change, and perhaps in 15°. Then, when the wind comes fair, it is beſt to ſhape your courſe direct for that part of the bay which is in 13° or 12° north latitude, and 20 leagues Eaſt of Point Palmiras; and thence directly to Batecalo, ſtand upon either tack, as the wind will permit. The N. E. breezes commonly begin between 17° and 15° north latitude, when well to the eaſtward; but ſometimes, after leaving the pilot, you will have light W. S. W.—Weſt—W. N. W. and N. W. winds, which will continue till the ſhip is in 14° and even 13° latitude. Let nothing, however, induce you to go weſtward of the meridian of Point Palmiras, but ſteer South: by doing this you will certainly meet with eaſterly winds at laſt, which to the weſtward you could not have found; or at leaſt they would be ſhort, weak, and unſteady, with much calm. On the other hand, it is by no means adviſeable to go near the Andaman Iſlands, becauſe they make a dangerous lee ſhore, with a gale from the weſtward, which ſometimes happens late in April.



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If you ſail before the middle of March, and are bound to the northward of Madras, you need not ſee Ceylon; but being got into 10° or 10° 30′ of north latitude, ſteer Weſt for the coaſt. The ſhip will always fetch to windward of Madras, becauſe ſhe will not get into the S. W. winds and northerly currents till near the land. But thoſe who ſail later, or even in that ſeaſon, if bound more ſoutherly, ought to have ſight of Ceylon; and thence coaſting, not too near Point Pedro, they may croſs the gut, or opening of Palk's Bay, to Negapatam, and go to any other port on the coaſt. Sometimes ſqualls, generally light, with thunder and rain, happen in this paſſage, eſpecially near Ceylon, which is of a great advantage to late ſhips, in this calm ſeaſon. They ought to be very careful when the weather is fair and the breezes variable, to carry what ſmall ſails they can muſter, and trim to every breeze that offers, which is too often neglected, particularly in large veſſels.

## DIRECTIONS FROM BENGAL TO THE MALABAR COAST; BOMBAY, SURAT, &c.

SHIPS that leave Bengal between the 15th of Auguſt and the 10th of October, bound to Surat, muſt work cloſe along the ſhores of Oriſſa, Golconda, and Coromandel, to Madras or Pondicherry, as mentioned above; and thence, as the winds are generally variable in October, they ſteer over for Ceylon, taking care not to go too far from the ſhore, for fear of loſing the current; except it is late in October, or the winds hang eaſterly. In either of theſe caſes, it will be better to ſtand off ſhore, for fear of being entangled in the bight, and not to come nearer Ceylon than 10 or 20 leagues, till about 7° 20′ or 7° latitude, where it is proper to ſee the iſland, becauſe the current runs ſwiftly round it. Thence, having coaſted round the Baſſas, keep pretty near the ſhore, till you ſee Colombo, and then ſtand off for Cape Comorin. The winds and weather in October, round the ſouth ſide of Ceylon, are unſettled: ſometimes you have hard ſqualls from the land; ſometimes much calm, or trifling and even freſh winds from the ſea, with ſqualls and rain. The ſqualls always give warning; and it is proper to anchor when you ſee them coming off ſhore, that you ſhould not be driven from the iſland: the ſame ought to be done in calms, when the current ſets off ſhore.

Between the middle of October and the middle of December, a ſhip will commonly meet with moderate gales after leaving the pilot; and as ſhe goes to the ſouthward, ſhe will find freſh gales north-eaſterly, with ſqualls and cloudy weather, eſpecially near Ceylon. As the current then runs ſtrong to the weſtward, the beſt courſe, for ſome days, is S. by E. then South—S. by W.—S. W. &c. ſo as to make Ceylon in the latitude of 7° or 7° 20′ North. The current renders the difference of longitude very precarious; therefore when you come into the latitude of 8° 20′ North, you ought to run Weſt all day, looking for the land at maſt-head, S. W. by S. or S. S. W. In the night you muſt carry an eaſy ſail, heaving the lead every 2 miles, and keeping a good look out. But if he,

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the land is ſeen northward of 7° 30′ North, you are to haul off, for fear of being entangled in a lee ſhore.

A ſhip having reached Ceylon, ought to coaſt round it, at a moderate diſtance, to Point de Galle. She will have no occaſion to anchor, there being now no land-ſqualls or calms, but a briſk gale and ſtrong current from the eaſtward. About Point de Galle, the wind will begin to fail; ſhe ought, therefore, to keep nearer ſhore, and avoid opening the Gulf of Manar, till as high as Berberyn Iſland, and thence ſtand over, cloſe hauled, for Cape Comorin. Ships in this ſeaſon will commonly have fair weather, and a freſh gale, between North, and N. E. by N. but if this gale ſhould prevent your getting as high as Berberyn, it is generally better to ſtand over, than loſe time in working along ſhore.

From Cape Comorin, you ought to work up the coaſt, with land and ſea-breezes, as it has been ſaid already; but if theſe breezes are intercepted by a briſk gale from N. N. W. to N. W. which ſometimes happen in December for 3 or 4 days, you ſhould turn to windward, or, if nothing can be gained that way, anchor till the gale ceaſes.

Ships leaving Bengal between the middle of December, and the latter end of January, will commonly find much leſs current, and fairer weather, with ſteady, but moderate gales from the N. E. than in the preceding month; therefore a S. by W. courſe, from the pilot, is now beſt for ſome days; then S. S. W. &c. going almoſt in a right line for that part of the bay, in latitude 7° 30′ North, and 20 or 25 leagues eaſtward of Ceylon. From thence you ought to ſteer Weſt, &c. as already directed, and make the iſland about Julius Nave, or in latitude 7° 0′. The weather will then be fine, and the wind fair, with which they ſhould coaſt round to Point de Galle; and having brought that point eaſtward, ſtretch over to Cape Comorin, with a moderate, perhaps a briſk gale from North to N. E. by N. which is uſual at this ſeaſon.

The directions for navigating from Bengal to the Coaſt of Coromandel, in February and March, are pretty ſufficient with regard to the Bay of Bengal; it is only to be further obſerved, that the meridian of Point Palmiras ſhould not be paſſed till in the latitude of 10° North, but if, at leaving the pilot, the ſhip is forced by the uſual S. W. winds to the S. E. when a fair wind comes, let her ſhape her courſe for that point which lies South of Point Palmiras, in the latitude of 10°, or 9° 30′ North. From it ſteer S. W.—S. W. by W. and W. S. W. for the eaſt ſide of Ceylon, between the Elephant and Dondra Head; and as no time ſhould be loſt, do not ſhorten ſail; but when in the latitude of 7° or 6° 30′ North, ſteer about Weſt in the day, and S. W. all night. This perhaps may carry you into 5° 30′ North, but it matters not, as you will have the better wind for it; and when your weſting is run down, which is about 5½ degrees from Point Palmiras to the Elephant, a W. N. W. or N. W. by W. courſe will always bring you in with the iſland; becauſe to the ſouthward of 8° North, and about 2° weſtward of Point Palmiras, there is commonly a northerly current from 10 to 20 miles a day: this is what runs along the N. E. ſide of Ceylon, and requires 2 or 3 days to croſs. When Ceylon is plainly ſeen, it is proper to keep 7 or 8 leagues off ſhore, for near Point de Galle a briſk gale from S. W. often begins, with which



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ſhips ſtretch over to Cape Comorin, and ſometimes they are not able to weather it, which cauſes a loſs of 2 or 3 days to work round.

From Cape Comorin you muſt work along ſhore, as well as you can, till it happens to blow freſh down the coaſt; it is then beſt to ſtand off ſhore (as if bound to Perſia through the Lackdivas) but this ought not to be attempted till in 10° north latitude, for fear of being driven, by the ſoutherly current, among the Maldivas: ſo that ſhould weak land and ſea-breezes, moderate variable winds, or ſoutherly winds prevail, your beſt way is to keep along ſhore, and not ſtand off till you can gain northing; and that perhaps may be in 14° or 15° North; you need not ſtand to the weſtward, as far as ſhips bound to Perſia, your buſineſs being chiefly to the northward; as you get northing, the wind will commonly veer to the weſtward, and drawing near Cape St. John, it will come to W. S. W. and S. W.

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# INSTRUCTIONS FOR SAILING

# IN THE NORTHERN PART OF THE BAY OF BENGAL.

## PART I.

## SURVEY OF THE COAST FROM POINT PALMIRAS TO THE BRACES; OF THE OUTLETS OF THE GANGES,

## AND OF THE INTERJACENT RIVERS FROM HUGHLY RIVER TO ROYMONGUL.

By Captain JOHN RITCHIE Marine Surveyor to the Eaſt-India Company, 1775.

POINT PALMIRAS is to ſea-ward encompaſſed by a bank of rocks and ſand, on which the depth of water is very various, between 1 and 4 fathoms; it is in ſome places very ſteep-to, there being 10 fathoms cloſe to the edge of the bank, and not more than 3 upon it: the north-eaſt edge is the ſteepeſt; to the eaſtward it is flat a little, and the ſouth ſide is flatteſt of all. Perhaps it will be better for ſeamen to mention the manner in which it was examined, nearly as it is remarked in the journal. I traced the bank off Palmiras in the *Mercury* pilot ſchooner, attended by 2 ſloops; and the account then given of it runs thus. We weighed anchor from Churinga Road, about noon, the wind ſouth-weſterly; and ſteered along ſhore towards Point Palmiras, in a depth from 2 to 3 fathoms, the ground variouſly hard and ſoft. To the northward of Kannaka or Rannaka river there is a flat, which reaches off from the ſhore, a league or more; it is all very ſhoal, and great part of it dries at low water. We paſſed along the edge of this ſhoal, in 2 fathoms water, the courſe S. E. and S. E. by S. When Kannaka

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naka river bore W. S. W. the depth upon the ſame courſe increaſed from 3 to 9 fathoms, in little more than a mile diſtance. Being now about 4 miles off ſhore, and the wind coming ſuddenly round to S. E. a fine working breeze, we tacked, ſtood into 2 fathoms water, and for the remainder of the days plied along the edge of the Palmira bank. E. N. E. from Point Palmiras, about a league diſtance, there is a dry ſand, or iſland, extending Eaſt and Weſt, about 2 miles in length, and half as broad; it lies upon the north-eaſt edge of the bank, and is detached from the point by a channel, with a ſand in the middle of it, which dries at low water.

"I know not what depth of water there is in this channel; but while we were here, ſeveral coaſting Paddy-boats, which came from the northward, went through it. All along the north-eaſt edge of the Palmira Bank, the depth decreaſes very regularly in approaching it. This is to be underſtood, in the wake of, or abreaſt of the iſland only; for to the eaſtward of the iſland it is otherwiſe, as will be mentioned preſently: and we ſtood on to within a cable's length, or little more, off the iſland, and tacked in 3 fathoms water: the bottom without this depth is ſoft, and here it is ſand mixed with mud. When we had worked to the eaſtward of the iſland, about 2 miles, and were ſtanding on to the bank (about ſun-ſet) the water ſhoaled ſuddenly from 10 to 7, and then to 4 fathoms, as faſt as the lead could be thrown at the laſt-mentioned depth; the veſſel was immediately thrown into ſtays, and although ſhe came about very quickly, yet we had not more than 3 fathoms, when the ſails were trimmed. The wind by this time had drawn round to South, and on ſtanding off E. S. E. the water ſhoaled to $2\frac{1}{2}$ fathoms, which obliged us to bear up to N. E. and upon this courſe the water deepened to 5, 10, and 15 fathoms, in 4 minutes of time. Here we anchored for the night; and I doubt not but every ſeaman will, by this account, perceive the danger of bordering too cloſe upon the bank, with ſhips of great burden, eſpecially at this part of it, where a ſhip in 7 fathoms water might take the ground, before the next caſt of the lead could be thrown. In the morning we weighed at 6 o'clock, the wind variable from S. S. W. to S. S. E. and plyed along the eaſtern part of the bank: here alſo it is pretty ſteep, being from 12 to 7, and then to 4 fathoms, in about $\frac{1}{2}$ a mile diſtance. As we got round to the ſouthward, we found the edge of the bank much flatter; when Point Palmiras bore Weſt, we had 5 fathoms upon the rocky ground; and in ſtanding on toward the point, about a mile farther, there were 4 fathoms, the bottom rocky, with ſand and ſhells. Here we anchored, in order to obſerve the latitude of the point, which was found to be 20° 43′ North, and the longitude 87° 5′ Eaſt of Greenwich. In the afternoon, when we had made a ſtretch or two to the ſouthward, we found the bank flat off regularly to ſea-ward; and indeed its limits to the ſouthward can only be known by the change of ground, from ſoft mud to a mixture of coarſe ſand and mud, with rotten ſtones, and broken ſhells.

The land of Point Palmiras is covered with Palmira-trees, from which, I believe, it got the name: it is much indented about the point, there being the mouth of a river, at a ſmall diſtance on each ſide of it; that to the ſouthward is a pretty large inlet, and muſt be navigable for ſmall veſſels, as the Paddy-boats which paſſed between the point and the iſland,

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iſland went into it. From this inlet the courſe of the ſhore is S. W. for 3 leagues, and then it makes an elbow, falling off W. S. W. for 10 miles farther; which brings us to the bottom of Falſe Bay; here it turns ſhort round to South, and S. by E. for 7 miles, to the Falſe Point of Palmiras. There are two rivers' mouths juſt to the northward of this point, which are ſome of the outlets of the river Gonga, that runs through almoſt the whole Maharattas country, and has the large town of Cuttack ſituated upon an iſland in it: but the principal outlet of this river is 17 miles N. E. of the Black Pagoda, at an elbow of the land; and there is a hard flat, extending a conſiderable way to ſea-ward from it, occaſioned by land thrown out of the river. All over Falſe Bay, the bottom is exceeding ſoft; the lead buries in it, and brings up a greeniſh mud. There is a dry bank which runs off Falſe Point, nearly in the form of a horſeſhoe; it turns ſhort round into the bay, and has ſome ſhrubs growing upon it. There is water withinſide of it, but I cannot ſay of what depth, as this place has never been carefully examined; but, if there be ſufficient depth of water, it is an excellent harbour for ſmall veſſels.

Before we quit Point Palmiras, it may be uſeful to remark, that, if a Light-houſe were erected upon the iſland*, it would be of the greateſt uſe to ſhipping, in their coming round the bank, to enter the Bay or Roads of Ballaſore: and in ſtrong ſouth-weſterly gales, when there is no certainty of meeting with a pilot in the roads, and it is dangerous to truſt to a ſhip's ground-tackle, they could haul cloſe round the bank, and bringing the Light-houſe to windward, might anchor, and ride in ſmooth water, in a depth of about 10 fathoms, until the gale abated. This ſcheme is very practicable, and nothing can hinder ſhips from practiſing it, but the uncertainty of knowing the ſituation of the bank; which the erecting a light-houſe would entirely remove, if proper directions were given concerning it. The expence of building would not be great, if, as I conceive, the bricks could be made, and lime burnt, at the point; for it is not to be doubted but there is earth, and ſhells enough, fit for the purpoſe; and a trifle of money impoſed upon ſhipping, would ſoon reimburſe the expence. I ſhall only obſerve farther, that a light at this place ought not to be leſs than 100 feet above the ſurface of the water: it would then be ſeen from a ſhip's deck, where the eye was 16 feet above the ſurface of the water, at above 5 leagues diſtance; and this far exceeds the extent of the bank in any direction: indeed it would be ſeen from a large ſhip's maſt-head, ſhortly after ſhe came paſt the Falſe Point.

"The courſe of the ſhore, from Palmira Point to Churinga River, is N. N. W. and the diſtance 25 miles. Kannaka River is about 2 leagues within the point, and the flat along ſhore to the northward of this river has been already mentioned. The BIGHT OR BAY OF CHURINGA has commonly been called *Kannaka Bay:* it is a good road for veſſels in the S. W. Monſoon; but there is not more than 3 fathoms water, a league from the land: beſides, it is quite out of the track of ſhips bound into Hughly or Hoogly River; and this is one good reaſon for recommending the anchorage under Palmira Iſland. About Churinga Creek the land bends round to the eaſtward; for the courſe of the ſhore,

* See what Captain *Leſley* has ſaid on this ſubject, ſpeaking of Point Gondeware.

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from thence to Bulramgurry, at the entrance of Ballaſore river, is N. E. by N. diſtance 27 miles. This part of the coaſt is very flat, there being little more than 2½ fathoms, above a league from the land; and in ſome places, the banks dry at low water, half a mile from the ſhore.

"From Ballaſore river, to the eaſt edge of the Eaſtern brace, the courſe of the ſhore is N. 76° E. and the diſtance 76 miles; that is to ſay, from Ballaſore river to Peply river 19 miles; from Peply to Beercool creek, 17; and from Beercool creek, to the eaſt edge of the Brace, 19 miles. The whole of this laſt diſtance has a much bolder ſhore than the Bay of Churinga; there being 3 fathoms at a ſmall diſtance from the land, except where it is interrupted by the flat of Peply and a ſmall ſand which lies along ſhore at the head of the Brace.

"When a ſhip has made the pagodas upon the Coaſt of Oriſſa, and is in depth of water from 15 to 17 fathoms, it muſt be obſerved that the courſe along ſhore to the Falſe Point, is N. 55° E. and the diſtance 17 leagues; I mean from the Black Pagoda: and it muſt not be forgot, that between 5 and 6 leagues, to the eaſtward of it, is the flat occaſioned by the outlet of the River Ganga, which has been mentioned already. The water will be ſhoaler upon it, in the track here propoſed, and the ground hard; but there is no danger, but that of miſtaking the elbow of the land, at this place, for Falſe Point; which can never happen, if any attention is paid to the diſtance before mentioned. There have been, however, ſeveral miſtakes of this kind committed, by reaſon of the hollow, or bight, in the ſhore between this place and Falſe Point, being miſtaken for Falſe Bay.

"When Falſe Point bears W. N. W. which will happen at the above diſtance from the Black Pagoda, the courſe to clear Palmira bank is N. E. and the diſtance 31 miles. This will bring Point Palmiras to bear W. N. W. after which, the courſe ſhould be N. by E. until the water deepens: for this track, you ſhould keep 15 or 16 fathoms in rounding Palmira bank; and ſoon afterwards 18, 20, and 22 fathoms. To prevent any miſtake here, I muſt obſerve, that the above is juſt the courſe and diſtance which the land and banks require, without any regard to the tides: but navigators muſt give attention to the ebb and flood here; for the latter preſſes ſtrongly upon the land, every where to the northward of Falſe Point, occaſioned by the indraught of the rivers and creeks, together with the natural flowing into the Bay of Churinga; and the former has juſt a contrary effect: ſo that the apparent courſe ſteering from Falſe Point, to round the Bank of Palmiras, will ſometimes be E. N. E. and at others N. E. by N. will be ſufficient. The guide to order this matter at preſent is, not to increaſe the depth of water too much, until round the bank; but if a light-houſe were erected, as I have mentioned, ſhips could then come round the bank, with an abſolute certainty of their ſituation, by night or by day; and without danger of being driven off upon the Sea-reefs, as has been too often the caſe.

"If there were no tides to affect a ſhip's motion, and it were wanted to ſteer directly from the above ſituation at Point Palmiras, to the edge of the Weſtern Brace, at the uſual croſſing

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croſſing track, the courſe would be N. 40° E. and diſtance 52 miles; for ſuch is the ſituation of thoſe places, with reſpect to each other: but, as the pilot-veſſels generally ride in about 17 fathoms water in the ſouthern Monſoon, and in about 11 fathoms in the northern, it is therefore neceſſary, when round the Bank of Palmiras, to ſteer N. W. or N. N. W. to the Roads of Ballaſore, in order to get a pilot for the river, and in this caſe too, the courſe muſt be regulated by the tides, if there be no pilot-veſſels in the roads.

"A ſhip ſhould never go into leſs than 15 fathoms water, during the ſouthern Monſoon, nor into leſs than 9 fathoms, in the northern: for if there be no pilot-veſſels in ſight, in theſe depths ſhe has nothing to depend upon but anchors and cables: I muſt therefore leave her, and ſee what is in the way before ſhe gets into Hughly river; only it may be neceſſary firſt to remark, that all the bay generally called Ballaſore roads, is very good anchoring ground; and the depth may be any thing leſs than 20 fathoms, according as ſhips go far into it: in ſhort, the depth at low water is nearly equal to the diſtance from the land, in miles, until we are very near the ſhore where, in Churinga Bay, the depth is leſs, and to the eaſtward of Ballaſore it is more.

"There is a patch of broken ground, off the Bay of Churinga; it lies in about 11 fathoms water, which may be ſeen diſcoloured upon it. I have heard people mention ſeveral patches of this kind, to be found in the bay; but I could never find any other than this; and am apt to believe, that all have ſeen the ſame patch, but have miſtaken the ſituation of their ſhips.

"Directly South from Peply river, lies the FLAT OF PEPLY, as it is called, extending about 3 leagues from the land, and a league in breadth, or more: the whole of it is hard ground, but at the ſouth end there is little leſs water upon it than upon the ſoft ground on each ſide: the ſhoaleſt part is between 3 and 4 miles from the ſhore, where there is not quite a fathom at low water; this part is detached from the ſhore by a ſmall channel, through which the country pilots of Ballaſore often conduct ſmall veſſels, in the coaſting way, to Hidgellee, commonly called Ingellee Road.

"THE BRACES are two hard flats lying to the ſouthward of the Beercool ſhore, and extending a great way to ſea-ward: they are detached from the land by a very tolerable channel, of 3 fathoms water, or more; and they ſeparate Ballaſore roads from the entrance of Hughly river.

"THE WESTERN BRACE is 5 miles broad at the north end, where it begins, about 2 miles from the land: it lies N. by E. and S. by W. being 7 leagues long; but, from the middle to the ſouth end, it is little more than 2 miles broad: in the depth of 10 fathoms it loſes itſelf inſenſibly; and in the latitude 21° 20′ North, a part of it is to be found. The depth at low water, upon this Brace, is at the north end, 2 fathoms; at the croſſing track, 3 fathoms, on common tides; and from thence to the ſouthward it gradually increaſes to 8 fathoms; after which there is no more hard ground.

"The KELL is a ſwatch of ſoft ground between the Braces, which entirely ſeparates them: it is 4 miles broad, and from it there is a paſſage for ſhips of moderate burthen between the head of the Eaſtern Brace and the land to Ingellee. In the croſſing track of

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ſhips, there is 7 fathoms water, at the eaſt ſide; there is 6 at the weſt ſide; and, indeed, no where in the Kell is there leſs than 5 fathoms at low water.

"THE EASTERN BRACE is 4 miles broad from the north end down to the croſſing track; and from thence to the ſouth end, it tapers away to a point, and bends round in a circle to S. E. The whole length of this Brace is 12 leagues; and the hard ground at the ſouthern extremity of it, is called the EASTERN SEA REEF: on the north end of the Brace, there is ſomething leſs than 1 fathom, at low water; and the depth increaſes gradually to the ſouthward; there being 2 fathoms on the croſſing track, and from 3 to 3½ at the ſouthern extremity of it: this muſt be underſtood of the loweſt ſpring tides.

"The depth of water at the eaſtern part of the Kell will always point out the depth upon the Eaſtern Brace, there being juſt 5 fathoms difference, at the croſſing track of ſhips; ſo that, when you have 9 fathoms in the Kell, there is full 4 fathoms on the Eaſtern Brace, and about 5 on the Weſtern. As I have frequently mentioned the CROSSING TRACK, it may be neceſſary to obſerve, that it means a ſpace athwart the Brace, about 2 miles broad, in the direction E. by N. and between the latitudes 21° 21′ and 21° 23′ North: how it is found in coming from Ballaſore Roads, I ſhall have occaſion to ſhew afterwards; and will now proceed to give an account of the ſands and channels at the entrance of Hughly river.

"BARRABULLA is a ſand which forms the weſt ſide of the fair way; I mean the LITTLE FAIR WAY here, or common track. It begins about 3 leagues S. by W. from the pagoda of Ingellee, and extends S. S. W. about 10 miles: the north end is called the *Head*, and the ſouth end the *Tail*, of the Barrabulla; the firſt is very ſhoal, having only ½ a fathom, or ſo, at low water; it is very dangerous, there being 5 fathoms in the Fair way, cloſe by it. The tail of this ſand has not much leſs water upon it than there is in the Fair way; only it is broken ground, and over falls of about ½ a fathom every caſt of the lead.

"LONG-SAND begins at Kedgeree Point, and extends to latitude 21° 18 'North, which is 2 leagues to the ſouthward of where the buoy of the Fair way is uſually laid: it is, in all, 35 miles long; its width is various, but generally it is narrow, having many patches, which dry at low water: the directions which it lies in are S. by W. and N. by E. At the ſouth end it opens to a broad flat, having a greater depth of water upon it than the Eaſtern Brace has, in the ſame latitude. It muſt be obſerved, that the paſſages, called *Cockerlees*, are no other than ſwatches through the Long-Sand. Of theſe there are Three; one juſt by Kidgeree Point, *(uſed at this preſent time*, 1775); another between 4 and 5 miles more ſoutherly, *(which is the old paſſage)*; and the third is directly Eaſt from where the buoy of Ingellee is uſually laid. This laſt is not known to the pilots.

"FAIR WAY is a track or paſſage, between the Long-Sand and Barrabulla, lying nearly N. N. E. and S. S. W. the upper part of it, or that between Barrabulla Head, and Ingellee road, is called Broken Ground, on account of the uneven bottom in that ſpace. The buoy is laid down in this track, for conducting ſhips through it. There are, firſt, the *Buoy of Ingellee*; this is laid 4 miles directly South from the pagoda of that place: ſecondly, the *Buoy of the Broken Ground*; this lies S. W. or thereabout, from the buoy of Ingellee; and

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the diſtance is between a league and 4 miles S. by W. A large league from *this*, lies the *Buoy of Barrabulla Head*; it is placed cloſe to the eaſt ſide of the ſand of that name, in not leſs than 5 fathoms at low water: indeed there is here the deepeſt water of the whole Fair way. The *Lower Buoy of Barrabulla* is 10 miles diſtant from that of Barrabulla head, bearing S. by W. $\frac{1}{4}$ W. neareſt; and when there is a middle buoy, it ſhould lie in the ſame line, and half way between them. The laſt *Buoy* is called that *of the Fair Way*; it i sgenerally placed S. W. by S. from the lower buoy of Barrabulla, and between 4 and 5 miles diſtant from it: but this is not always certain; for I have ſeen it lying ſo much to the eaſtward, as to be in leſs than 3 fathoms, at low water, upon the hard ground of the Eaſtern Brace; and in that ſituation it could be ſeen from a ſmall veſſel's maſt-head, in the Kell. The Fair way ſoundings are, in general, $4\frac{1}{2}$ fathoms at low water, common tides; except at the Broken Ground, where there is little more than 3; but the eaſt ſide of this part is deepeſt. I ſhall juſt remark, that the Fair way Buoy ſhould be in the latitude 21° 25′, or between it and 26′ North, and muſt quit this matter, by obſerving, that there is a very good paſſage, between the Weſtern Brace and Barrabulla, for veſſels of moderate burthen.

" GASPER SAND is the greateſt of all thoſe in the Hughly entrance: it begins a little to the ſouth-weſtward of Mud Point, in latitude 21° 57′ North, and goes S. by W. 20 miles, where it bends round near Sagor iſland, ſouth-eaſtward, and extends as far as the latitude 21° North. The north end of this ſand is called THE MIZEN: it is very broad, and fills up the whole entrance, leaving only a channel on each ſide; of which, one is the Road of Kidgeree, where the ſhips now ride (1775). The middle part is called Gaſper, which, to the northward of Sagor, is narrow, and to the ſouthward, broad: the ſouth end is called the EASTERN SEA-REEF: but the whole of the Mizen, Gaſper, and Sea-Reef, is one continued ſand, with various depths of water upon it; and many patches, which dry at low water. This ſand is detached from the eaſtern ſhore, and Sagor iſland, by a very good channel; only it is ſomewhat narrow at the north end, which, together with the tides, would make the pilotage, going down, very difficult juſt at the Mizen head.

" SAGOR or *Sauger* Iſland is the eaſt point of the great entrance of Hughly river: *I ſay great*, to diſtinguiſh it from Channel creek, which is the little entrance; it is ſituated between the latitudes 21° 34′ and 21° 41′ $\frac{1}{2}$ North, lying N. N. W. and S. S. E. being in length 8 miles, and about half as broad: it is detached from the land by a creek, the north end of which dries at low water; and what is remarkable of this place, is, that there is here the greateſt riſe and fall of tides, of any place about the head of the Bay; for, on ſpring-tides, the water riſes and falls 4 fathoms.

" Upon the eaſt ſide of Sagor iſland, is a pagoda, and a large tank of freſh water; it is a place of worſhip, to which numbers of the Hindoos reſort once a year; and the Bramins ſubſiſt upon the preſents given them of grain, roots, and dried fruit. The Bramins call the Iſland Gongo-ſagor; but the natives, in general, underſtand Gongo-ſagor to be the whole land which ſeparates Channel creek from the weſtern branch of Hughly river; except the little

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little iſland Coxes, which lies to the northward of Sagor iſland; and is no more than a league in length, and 2 miles broad.

" The country name of CHANNEL CREEK, is *Barratulla*; and its courſe is S. by E. 30 miles: there are ſome very quick turnings in it, near the north end, which makes the channel difficult; otherwiſe it would be an excellent paſſage for ſhips; but, at any rate, the north end of it is much the beſt place about Hughly entrance, to moor ſhips in, during the S. W. Monſoon; and might be occupied that way, with very little trouble. Upon the eaſt ſide of this creek, in latitude 21° 45′ North, is the creek Dooagra, which gives a paſſage into the *Sundrybunds*, or *Sunderbunds*. The whole land upon the Coaſt of Bengal has this name, from a kind of timber called by the natives, *Sundry*; although there are many other kinds produced here; for the whole woods are called by this name. The channel into Barratulla, at its mouth, is cloſe to the eaſtern land: it is narrow and deep, and from thence to ſea-ward, a ſhip might ſteer S. E. by S. without fear. The bottom here is ſoft black mud, with ſtars or ſhining ſpots.

" The channel, to ſea-ward, from Barratulla, is detached from thoſe to the weſtward, by a flat, generally called SAGOR SAND; it is as hard as a terrace, and extends to the ſouthward as far as the latitude 21° 10′. Near the land there are many patches, which dry at low water; and, for a long way to the ſouthward, there is not more than 6 feet water upon it. Veſſels going out of Channel creek muſt be aware of this; for the laſt of the ebb, and firſt of the flood tides, ſet ſtrong to the weſtward here. If, in any time coming, there ſhould be a neceſſity of making Channel creek the paſſage for ſhips into Hughly river, it would be neceſſary to erect a light-houſe upon the eaſt point of the entrance: this would become an excellent guide, both going out and coming in.

" SUBTERMOOKY is the next river Eaſt of Barratulla; it is a conſiderable river, and has within its mouth an iſland, called Coja Deep. By the creek Dooagra, it has a communication with Barratulla, and one reach farther up, it divides into branches, of which the eaſtern one is part of the lower paſſage through the woods, and is called *Naukcherah*. There is a good depth of water in the channel of the lower part of this river, and excellent anchorage for ſhips, in the ſouthern monſoon: but it is moſt remarkable for having the little iſland, Coja deep, near its mouth, between which and the land is the beſt harbour upon the Coaſt of Bengal.

" COJA DEEP * lies in the latitude 21° 28′ North, 18 miles to the eaſtward of Sagor; it is about 4 miles from the ſhore, and its extent is ſcarcely a mile over, either way: there is, however, a charcoal manufactory upon it; N. N. W. from this iſland is the entrance of *Subtermooky*; and N. N. E. is that of *Jummerah*, the next river between the iſland and the land which ſeparates theſe rivers: there is no where leſs than 5 fathoms water; and near the channels of the river, 6, 7, or 8 fathoms; it is, therefore, a very good anchorage for ſhips, when compared with any other place upon this coaſt. The iſland breaks the great ſwell from the ſouthward, and the flats and ſands do the ſame from the eaſtward, or weſtward.

* *Deep, Dip, Dib, Div*, or *Diva*, an iſland, in the Indian language.



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The beſt channel, leading to this place, and conſequently to both the rivers within it, runs cloſe by the weſt ſide of Coja-deep: it is there 2 miles broad, and has a depth of 10 fathoms at the iſland: to ſeaward it decreaſes gradually to 4, and 3½ fathoms, which is the leaſt. The channel lies North and South, and is bounded to the weſtward by a flat, which ſeparates it from the channel of Barrabulla; and to the eaſtward, by another which ſtretches off to the ſouth-eaſtward of Coja-deep. There is a ſand upon the weſtern flat, a little to the northward of the iſland, which dries at low water: and at other times of tide the ſea breaks very high over it, in ſtrong ſoutherly gales. I need only ſay farther, that, if a ſhip brings the iſland to bear north-eaſtwardly a little, and ſteers directly in, clear of the weſt ſide of the iſland, ſhe cannot miſs the channel. This would be a place of great importance, were it a little more conveniently ſituated for Calcutta.

"When we go up JUMMERAH RIVER, about 9 leagues, we find its name changed to *Nullaoah*; upon the banks of which, and in the creeks about it, are the great ſalt *Tuffels*, of the ſame name: theſe, we are told, were formerly employed for the benefit of the Nabob's houſhold. The country to the N. W. here, had once been well cultivated, but is now totally deſerted. There is an old Hindoo pagoda upon a creek at the weſt ſide of this river: it is about 60 feet high. The jungle is very cloſe and thick about the pagoda, which ſtands in latitude 22° North, 20 miles Eaſt from the north end of Channel creek. It is a few miles to the ſouthward of this that the creek Juggy Jaſſah gives a paſſage through to the Mutwall, and has ſalt-works upon its banks on both ſides.

"ROY-MATTLAH, or *Muttwall*, is the next river eaſtward, the channel of which is to ſea, cloſe to the eaſtern point of the entrance; it is 32 miles to the eaſtward of Sagor, and is ſeparated from the channel of Jummerah by a ſhoal broken flat. There is a creek which cuts off the point of land between theſe rivers, into an iſland which the country people call Bullcherry; and upon the eaſtern part of this, there are ſeveral pits dug for freſh water; and a little to the N. E. of the Iſland are the mouths of two creeks. I muſt obſerve, that there is no mark to know one part of the land from another, along this coaſt. The whole is low, and covered thick with trees: and wherever the meridian diſtance from Point Palmiras, or from Sagor, can be tolerably aſcertained, no great miſtake need be made. The lower part of Mutwall is very large, being above a league broad; and between the latitudes 21° 47′ and 22° North, it forms ſeveral iſlands, and divides into two branches, of which that to the weſtward is called Bogybogie; which name it bears as far to the northward as the latitude 22° 20′, where it again ſeparates into three branches, the weſternmoſt of which leads directly into the ſalt lake of Calcutta: until it is cloſe to the lake, there is no where leſs than 3 fathoms water, and in many places much more; ſo that a ſhip of conſiderable burthen might come into the Mutwall, and, having only a boat to ſound before her, proceed directly up to Taida, a village juſt beyond the lake. The eaſtern branch of Mutwall retains its own name, but it runs no great way up; for, by dividing into many little branches, it may be ſaid to loſe itſelf in the woods. The ſouthern extremity of the land, to the eaſtward of Mutwall, is in latitude 21° 29′ North; and the bank to the ſouthward of this is very ſhoal for a long way to ſeaward. The channel at the river's mouth is large and fair, lying N. by

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by W. and S. by E. About 10 miles from the land, the depth is 3 fathoms at low water, and gradually increaſes to 9 or 10 fathoms at the entrance.

" Every ſeaman who may by accident be driven, or who may have buſineſs upon the coaſt at the end of Bengal bay, ought to make uſe of the following obſervations.

" Conceive the whole of this coaſt, when it is firſt ſeen from a ſhip at ſea, to have the appearance of a range of low iſlands covered with trees; and that the ground between the ſhip and them is a ſloping bank, with very little water in it, near the land. Conceive the bank to be cut through by a channel between each iſland: that theſe channels are variouſly ſituated, having each a different courſe; but that all are ſoft ground, with an increaſing depth of water towards the land. When the coaſt can be ſeen from the deck, the depth of water is in general about 3 fathoms: and very few places have much more or leſs; I mean, at low water. The bottom, at this diſtance, is ſtiff ground. If a ſhip, as ſhe draws nearer the land, be in a channel, the ground will ſoon become quite ſoft, and the depth increaſe; but if ſhe be not in a channel, the ground will ſuddenly be found hard as a terrace, and the depth will decreaſe: if this laſt be the caſe, there is an immediate neceſſity of ſtanding athwart to the eaſtward, or weſtward, as the wind will beſt permit, until the ground ſoften; and there is no doubt but the depth will increaſe at the ſame time. Whenever the ground is found to be quite ſoft, a ſhip would bear up for the opening without fear; and as ſhe goes in, it will ſoon be perceived, that what appeared to be an opening between iſlands, is in reality the entrance of a river: and, except about Sun deep, this will be the caſe all over the head of the bay. I am here ſuppoſing the caſe of a ſhip being driven upon this coaſt by a ſoutherly tempeſt. It was a misfortune of this kind which occaſioned the coaſt to be ſurveyed; and it is with intent to render the ſurvey as uſeful as poſſible, that I am ſo particular in deſcribing the various ſituations of the channels with reſpect to the land and the directions which they take upon the bank; and if ever it happens to contribute to the ſafety of ſhips, or men, my labour will not be loſt.

" It is from the ſalt-works that thoſe who may be driven upon this coaſt in tempeſtuous weather, are to expect the earlieſt relief, either of boats, or of men, to pilot them to the inhabited country. The people employed upon this buſineſs have the general name of *Mollingabo*; they are a quiet, harmleſs caſt of men; and not a little obliging, when not ill treated, or frightened by the rough manners of European ſeamen. A ſmall ſupply of freſh water may be had of them, and a little rice; that being the only proviſion theſe people have: it is true that ſometimes a few fowls may be had, but rather unwillingly, becauſe they are brought as a preſent, or rather ſacrifice, to *Gaugie Sahib* (the god of the woods), for protecting them from tigers and wild beaſts. It is by this means, that we every where in the woods hear crowing of cocks, whether there be people near the place or not: for theſe birds ſtray away from the Salt Churrs, and at laſt become quite wild, and ſometimes fly over the rivers. I mention this, to prevent thoſe who may be unacquainted, from going into the woods, in ſearch of people, when they hear cocks crowing. One caution is very neceſſary, which is to beware of going aſhore at the Salt Churrs in the night; for both the royal tiger and leopard are always waiting about theſe places, and often cover all the ground over at night, as may be ſeen by the prints of their feet.

" BANGADOONY

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" BANGADOONY is the next river to the eaſtward of the Mutwall; it is but ſmall, being only a collection of the water of ſeveral creeks or drains from the jungles: there is, however, tolerable deep water at its mouth; and the courſe of the channel to ſeaward is S. S. E. The river has its name from an iſland which ſeparates its entrance from Gooa-ſuba river. A veſſel of tolerable burthen may paſs to the northward of Bangadoony iſland; and between this and a ſmall iſland which lies in the paſſage, a ſhip might moor ſafe from every wind. There were formerly ſalt-works at this place; but they have not been occupied of late years.

" GOOA-SUBA comes next: it is a tolerable large river, but the moſt difficult to enter of any upon the coaſt. The channel at its mouth takes over to the eaſtern land, and then bends round in a circle to South: therefore whoever would go in here, muſt bring the middle of the land Eaſt of the river to bear North, and ſteer directly in for it, until pretty cloſe to the ſhore; after which ſtand over to the eaſtward, cloſe to Bangadoony iſland; and then the channel leads fair up the river. The firſt reach of Gooa-ſuba goes up about N. W. at the end of which there is, upon the eaſtern ſhore, a creek, with very conſiderable ſalt-works upon its banks. Beyond this creek, the courſe of the river is North a conſiderable way: it then turns ſhort round to W. S. W. and afterwards N. N. E. The point of this laſt ſhort bending is cut off by a creek, which makes it an iſland. About the latitude 20° 58′ North, in this river, we again come to the Sunderbund paſſage: this is at a very ſhort turning of the river from N. W. to Eaſt ſoutherly; and the point is remarkable by being cut off into a ſmall round iſland. There are two creeks in the weſtern bight, which lead through to the Muttwall river; but the northern one is much the beſt, and is called *Tera banka* (13 reaches). From this creek, if we would go to the eaſtward, the paſſage is one reach farther up Gooa-ſuba, where we come to the creek *Noa banka* (9 reaches) which leads through to *Harribanga*, the next river eaſtward. It may ſeem trifling to be ſo particular about the creeks which give paſſage to boats through the woods: but I muſt obſerve, that in caſes of ſhipwreck upon the coaſt, ſtrangers here would never of themſelves get out of the Sunderbunds, ſuppoſing they had ſaved their lives in a boat.

" We come now to the eaſt ſide of the entrance, at which is the great channel for the united waters of Roymongul and Jebboonah. The point of land is in latitude 21° 37′ North; and by it the depth in the channel is 10 fathoms; and within the mouth 12 or 14 fathoms: out to ſea-ward, the depth leſſens gradually to 4 fathoms. The next entrance is one of the moſt important upon the coaſt of Bengal, whether we conſider it as a place where ſhips might find ſhelter in a ſtorm, or as an inlet to an enemy. It is called ROYMONGUL ENTRANCE, from the river of that name; but there are two other rivers, which diſcharge their waters by it: that to the weſtward is Harribanga, and the eaſtern one is Jebboonah. Harribanga is ſeparated from Roymungul by a tongue of land, about 4 miles within the entrance."

The Editor laments that it is not in his power to continue this intereſting deſcription of Mr. *Ritchie* beyond Roymongul, and that he is obliged to proceed from hence abruptly to the Coaſt of Chittagong, ſurveyed by the ſame gentleman.

PART

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# PART II.

## DIRECTIONS FOR SAILING FROM THE ARRACAN SHORE, ALONG THE COAST OF CHITTIGONG, OR CHITTAGONG.

By Captain JOHN RITCHIE.

" BETWEEN the latitudes of 21° 10′ and 21° 24′ are ſituated the WHITE CLIFFS OF ARRACAN: they are ſeparated from the Chittigong coaſt by the opening of Sangrial or Cruzcool. In the offing near the White cliffs there is good anchoring ground, it being ſtiff a little below the ſurface, and ſoft on the top, and the depths gradually decreaſing from 20 fathoms at 11 leagues off ſhore, to 5 fathoms cloſe in: ſo that a veſſel with good ground-tackle, may ride a ſtrong gale out. The latitude of 21°, and between that and the White cliffs, is the beſt landfall on this part of the coaſt for veſſels that are driven to the eaſtward, by ſtreſs of weather, or other accidents, it being perfectly clear of ſhoals, and ſteep-to. After making the land, it is neceſſary to haul off to the weſtward, to avoid the BANKS OF KUTTUPDEAH and MASCALL, which extend to the ſouthward as far as 21° 23′, and off ſhore 9 or 10 miles in ſome places; ſome of them being detached from the ſhore, and having wide and deep channels within; which channels, however, it would not be prudent to attempt, for want of proper marks. The outermoſt bank is ſteep-to on all ſides, and has from 15 to 20 fathoms cloſe to it, and only 6 or 8 feet on it at low water. There is alſo a ſtrong indraught of the flood-tide towards the opening of Cruzcool, and the creeks between the Maſcall Iſlands; which makes it ſtill more neceſſary to keep a good offing after having made the White cliffs.

" Should it happen, that by means of hazy weather, or other accidents, a ſhip ſhould be cloſe in with the White cliffs, before diſcovering them, and the wind too far weſterly to clear the ſhoals, and too ſtrong to attempt riding it out, a place of ſhelter may be found, by ſailing within the weſtern ſhoal, or even within Kuttupdeah if neceſſary, by attending to the following directions. The REEF OF CRUZCOOL extends from the point of Cruzcool to about 7 or 8 miles W. N. W. On the weſtern part of this reef, is a ſmall ſandy iſland, called *Red-crab Iſland*, (in latitude 22° 28′ North) it being about 2 miles S. S. W. from the ſouth point of the Maſcall iſlands. Leave Red-crab iſland a league to the eaſtward, and from this ſtation, which will be in about 8 fathoms, ſteer N. by W. in 10 to 15 fathoms, till the paſſage between Kuttupdeah and Maſcall is quite open; then ſteer on the direction of the opening (which will be about N. E. by N. in 7 to 10 fathoms water) and having got within the point of Kuttupdeah, you may anchor ſecurely in 10 fathoms, ſoft ground.——Note, That a ſpit extends off the point of Kuttupdeah upwards of 2 miles, S. W. by S. and that a bank ſtretches from the Maſcall ſhore, to the diſtance of 1¼ mile. Both of theſe will be avoided by keeping the aforeſaid paſſage quite open. It would be improper, and indeed unneceſſary, to run a mile within the point of Kuttupdeah, by reaſon of a bank that projects from it to more than half way acroſs the channel, at 2 miles within the entrance. Should

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" Should the wind be fair, after making the White cliffs, and the ſhip bound to Chittigong, a north courſe from 18 fathoms (when abreaſt of the cliffs in latitude 21° 10′) will carry the ſhip 4 miles clear of all the ſhoals, paſſing them in 10 and 12 fathoms, with an offing of 4 to 4½ leagues from the Maſcall iſlands. When the ſouth end of Kuttupdeah bears W. by N. you are paſt the north end of the outer ſhoal, and may haul in more towards the ſhore, keeping in 9 or 10 fathoms, with an offing of full 2 leagues from Kuttupdeah. When paſt Kuttupdeah, haul ſtill more in towards the ſhore, till you get in 6 fathoms at a league off ſhore, and coaſt along at that diſtance till you diſcover the mouth of Chittigong river. The diſtance from Kuttupdeah to the river's mouth is about 6 leagues; the courſe N. ¾ W. The coaſt between theſe two places is low and flat near the ſea, but hilly 2 leagues in. Seven miles to the ſouthward of Chittigong river, is the *Sunkar River*, or *Anghor-Colley*: this having a large opening, may at firſt be miſtaken for Chittigong river.

" If the weather be clear, it is not eaſy to miſs the mouth of CHITTIGONG RIVER, which lies in latitude 22° 13′ North. The chain of hills above mentioned, between Kuttupdeah and the river, ſituated at 6 miles in land, ends in a point about 3 miles South of the parallel of the river's mouth. Four or 5 miles N. W. from the end of this chain of hills, are two ſmall detached cluſters of hills, within 3 miles of the ſhore, the northernmoſt of which lies cloſe behind the Bunder, or anchoring-place, in the river. Should the weather be hazy, there may yet be ſeen a tall flag-ſtaff, and a remarkable tree, both cloſe to the ſhore. The flag-ſtaff ſtands 1¼ mile to the ſouthward of Noman's (or Norman's) Point, which is the ſouth point of the entrance of the river: the tree, which is thick and buſhy, and called the *Fakeers tree*, ſtands 3 miles South of Noman's point, and 4 miles North of the Sunkar river.

" In very clear weather the hill called Shahbroage, with two round trees and a flag-ſtaff on it, will be ſeen when a-breaſt of the Fakeers tree, bearing N. ½ E. diſtant 10 or 11 miles. This hill terminates on the South a chain of low hills, that run parallel to the Chittigong coaſt, and in which the Seetacoon hill is the higheſt, and moſt remarkable.

" Thoſe that wait for a pilot for Chittigong river, ſhould anchor abreaſt of the Fakeer's tree, from whence a gun may be heard at ISLAMABAD. The proper depth for anchoring is in 6 fathoms, at 1½ mile from the ſhore. The bottom here, as well as all along the coaſt from Kuttupdeah, is ſtiff, and excellent for holding; but in ſtrong gales the ſea runs very ſhort, and commonly breaks all over a ſmall veſſel.

" I would not by any means adviſe a perſon to attempt entering the river without a pilot; but ſhould neceſſity oblige one to puſh for it, I refer him to the directions given at the end.

" If the ſhip draws too much water for the bar, and a ſcarcity or badneſs of ground tackle renders dangerous any attempt to ride out the ſtrong gales that blow on the ſhore, at certain ſeaſons, ſhe may bear away for BOMINY HARBOUR, which is a place of ſhelter, formed by the iſlands of Bominy and Sundeep, and the main land. This harbour lies about

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about 12½ leagues to the northward of Chittigong river; and, in order to reach it, you muſt coaſt along the ſhore, keeping in 6 fathoms, at leſs than 2 miles off ſhore: the courſe is from N. by W. ½ W. to N. W. by W. the land embaying. When you begin to open the paſſage between Sundeep and Bominy, haul cloſer in with the main land, ſo that by the time you have brought the north end of Sundeep to bear Weſt (or Seetacoon hill nearly Eaſt) you may be within a mile of the ſhore. Coaſt along, at that diſtance, keeping in 7 and 8 fathoms water, to avoid a reef that projects near 5 miles from the ſouth-eaſt end of Bominy. After having run about 8 miles in this manner, you will open the eaſt point of Fenny river, diſtant 8 miles, which was before ſhut up in the low round point that forms the eaſtern entrance of Bominy harbour; you muſt now haul over towards Bominy iſland, and being got into 5 fathoms (at low water) within 1½ mile of the ſhore, may anchor ſecurely. When at anchor, the ſouth-eaſt point of Bominy will be very little open with the north-eaſt point of Sundeep: and Seetacoon hill (which has a ſmall pagoda on the top of it,) will bear E. S. E. the latitude is 22° 39′ North. It is proper to anchor nearer to the iſland than the main, in order to avoid the ſtream of tide of the great Fenny; the flood of which comes in with great rapidity at ſprings, and cauſes a bore in the narrow parts of the river.

"It is high water in Bominy harbour at 2½ hours, full and change.

"As the whole ſpace between the meridians of Rabnabad Iſland, and the eaſt end of Sundeep has not been ſounded farther South than about 21° 30′, it would be imprudent for ſhips to come to the northward of that parallel between theſe meridians. I have been informed by the Chittigong pilots that there are *Two banks*, in latitude 22°, one of them 5½, the other 9 leagues from the ſhore; the ſea in rough weather breaks over both. Both on account of theſe banks, and of the unexplored track above mentioned, a ſhip leaving Chittigong road ſhould run to the ſouthward as far as 21° 20′ before ſhe ſtands acroſs the Bay.

"The ſouth point of the entrance (called, as we have ſaid, Noman's or Norman's Point) has a flat projecting from it to the S. W. but is ſteep towards the river, the channel of which runs cloſe by the ſouthern bank, and then out to ſea in a ſouth-weſt direction: therefore to enter Chittigong river, bring the ſteep or the north ſide of Noman's point to the eaſtward of N. E. ſo as to open the bank of the river within it, and ſteer directly in N. E. and along the ſouthern ſhore at 30 or 40 fathoms diſtance; and when paſt two little creeks in the Bunder green, drop an anchor under foot: for there is not room to throw a veſſel to there if it blows freſh, the channel being not above a cable's length over; and for this reaſon they muſt moor immediately. There is a clump of trees at the foot of Bunder hill, and cloſe to the river: the anchoring-place is ½ a mile below this clump, and oppoſite to it the channel of the river runs towards the oppoſite bank. From the anchoring-place, Shahbroage bears North.

"In the S. W. Monſoon the bar of the river looks frightful, as the ſea breaks over it in moſt places; and on the north ſide of the entrance there is a cluſter of ſands, which dry at half-ebb. It is high water on the bar at one o'clock, full and change; and the beſt time



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to enter the river is at high water ſlack. The flood ſweeps ſo rapidly athwart the entrance of the river, that it is dangerous to attempt going in while it is making, eſpecially if the veſſel ſteer the leaſt wild. Next to high-water ſlack, the beſt time is when the ebb has begun to make; but then there is a riſk of being driven on the flat of Noman's point. The beſt track over the bar has more than 4 fathoms at high water; and in drawing near the river bank, it deepens to 5, 6, and 7 fathoms."

## SAILING DIRECTIONS FOR THE COAST OF CHITTAGONG,

By Mr. BARTHOLOMEW PLAISTED,

MARINE SURVEYOR TO THE EAST-INDIA COMPANY.

"ALL ſhips in the S. W. Monſoon, coming from the ſea, ought to make the coaſt to the ſouthward of Red-crab iſland about the latitude of 21° 15′ or 21° 20′ North; but nothing farther to the northward. This I recommend on two accounts: firſt, it appears to me to be a bold ſhore, clear of any ſhoals, for any thing I have obſerved, with gradual ſoundings to 3 fathoms at the diſtance of $\frac{1}{4}$ a mile from the ſhore; ſecondly, cloſe to the beach is a range of rocks and ſandy cliffs*, that make it very remarkable, but more eſpecially when the ſun is to the weſtward, when they will appear very white; but, in the morning, the ſhade gives them a different complexion; and in the country is high land, and a remarkable hill, like a ſugar-loaf. Add to this, that in the months of June, July, Auguſt, and September, the continual rains for days together, make obſervations of the latitude more rare, and the danger greater of falling in with the coaſt, which is then a lee ſhore. There will be leſs riſk in falling in here, than farther to the northward; but if a ſhip has already got ſoundings to the northward, and wants to bear away for Chittagong, there is no neceſſity to run to the ſouthward, in the months of October and November, but endeavour to make the land between Norman's point and Anghor colley.

"All veſſels from Bengal ſhould follow theſe rules if poſſible; but if driven to the ſouthward, they muſt work along ſhore for the benefit of the floods.

"Coaſting this ſhore in 7 fathoms, to the northward of the cliffs, appears a large bay, which is called CRUZCOOL; and there is a conſiderable river which falls into it, named Muſh-colley. I took extraordinary pains in examining this place, in hopes of finding a harbour; but at laſt muſt conclude there is no entrance for any veſſel of burthen. The ſoundings I found there, and the chain of breakers that encloſe it, make me apt to think that none would venture in, even ſhould a channel hereafter be found amongſt them; for the long boats, on the ſurvey, were obliged to go in, to the northward of Red-crab iſland.

* Between the Third and Fourth of the Sandy cliff, counting from the northward, is a ſmall run of freſh water. A hint of this kind may be deemed neceſſary, as ſhips have been three months in their paſſage from Madras to the Bay; and this eaſtern ſhore is the proper track.

"Before

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" Before the northernmoſt of the cliffs is about E. by N. from the maſt-head, you ought to look out well for Red-crab iſland, and the breakers off it, which are eaſily perceived in day-light, and conſequently avoided; but the ſoundings about them are ſo irregular, that in the night it is better to keep out into 15 fathoms, and on any ſudden ſhoaling ſtand off again; for here are 5 and 6 fathoms almoſt cloſe to the breakers.

" RED-CRAB ISLAND is eaſily known, by its bearing from Cruzcool, and it being a white ſand, with a few green ſhrubs on it.

" Being paſt Red-crab iſland, it behoves you to keep a look out for A VERY DANGEROUS SHOAL, which, at high water and little wind, may not be perceived otherwiſe than by the lead. Its ſituation with the ſouth end of Kuttubdea and Curria rivers I have carefully laid down, and they are the chief marks by which to avoid it: the ſoundings about it in the Draught ſhew what depth of water there is near it; but the above bearings may be relied on.

" From hence to the northward, there appears to be no danger along Kuttubdea, provided you keep about 4 or 5 miles off ſhore: nearer in there is a ſand, and within it the depth is 7 fathoms.

" KUTTUBDEA is a woody iſland, having no people living on it, but a few fiſhermen: from Pilot-cotta to the ſouth end, there is freſh water; and here are the moſt fiſhermen.

" The INNER PASSAGE, called by the natives *Uckoia*, is a very ſafe paſſage; but, I believe, will be hardly ventured on by ſtrangers, though I would undertake to carry the biggeſt ſhip in the navy through: and, as it affords good ſhelter in the S. W. Monſoon, I ſhall give the beſt inſtructions my own experience has furniſhed, leaving others to make uſe of them as their own prudence may direct them.

" Red-crab iſland is the beſt to take your departure from; and coming from the ſea, ſtand in between the ſhoal and the iſland, but neareſt to Red-crab iſland, at the diſtance of about 2 miles, keeping a look-out for the point, a little above Curria river, which may be known by ſome trees reſembling bamboo buſhes: ſteer in for it, but do not approach the eaſtern ſhore too much, on account of the ſhoal that is off it. As ſoon as you perceive the ſouth end of Kuttubdea, which is known by the ſame kind of trees exactly, keep it due North till you have the paſſage fairly open: then you may ſteer in without fear, taking care to keep two-thirds of the paſſage to the eaſtward; and thence forward range along Kuttubdea, in between 4 and 5 fathoms; and all along is good anchorage in ſoft ground, and no ſhoals: but to the oppoſite of Sunwa, and Urantania, the ſhoals run very far out, and without them deep water. There are Three Creeks on Kuttubdea; the firſt called

" *Kukera-banſera* (that is, a dog ſwimming) creek; ſmall veſſels, drawing not above 10 feet water, may find a ſafe harbour in it.

" The next creek, called *Pilot-cotta Creek*, (from a pilot murdered here by the Muggs) runs through the iſland, and has various ſoundings, from 1 to 7 fathoms, juſt within the eaſtern mouth. A ſhip may lie ſafe in 7 fathoms; and with the proper time of tide, if



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ſhe draws only 10 feet water may go quite through it. I had 5 feet on the bar at the weſtern mouth.

" The other creek, to the northward of Pilot-cotta, is ſo inconſiderable that it is not worth further notice.

" Being paſt *Chutta-Sarway*, you may venture over to that ſhore, if you chooſe it; but mid-channel is now the beſt. At the upper end is a ſmall river, not above a cable's length over, called Kentlaw, which about $\frac{1}{2}$ a mile in it divides itſelf: one part runs up to Julkuddar; and the other, called KHAUT COLLEY, turning away to the N. W. comes out again to the ſea. The firſt entrance at Kentlaw is a very ſafe harbour, but there is no entering at the other end. I worked through it hank for hank, with the two long boats, and did not find one ſhoal in it, the ſouth-weſt ſide having generally 4 fathoms, the north-eaſt ſhore 7, and about a cable's length throughout. As a hundred ſhips may lie in it ſafely, it is neceſſary to ſay ſomething more of a place that may be of more general uſe hereafter.

" At the mouth of Kentlaw is a ſhoal on each ſide, and at low water, both together, almoſt take up half the width; and yet at low water I would prefer to enter it, becauſe they then diſcover themſelves, and make the opening clear before your eyes. Having brought the river open N. E. by E. look out for the point, at the upper end, that divides the two rivers; and juſt keep it open, one third of the river, with the ſtarboard ſide; and you may ſteer in without fear. Juſt in the middle between the two ſhoals is 9 and 10 fathoms, but being entered, you have 6 fathoms: then haul up for the larboard ſhore directly. Afterwards you may anchor where you pleaſe; but the farther in is the ſafeſt in the S. W. Monſoon. Up at Julkuddar-kella is water: and the ſituation of this harbour is ſuch, that it communicates with Choicoria and Ramoo without the boats going to ſea, or entering Uckoia paſſage.

" Ships coming from the northward will conſequently enter the Uckoia paſſage, to the northward; but the Serrole coaſt muſt not be approached too near, for it is ſhoal; and being turned Cuckold's point, after bringing it N. W. but not too much, they may venture to keep up the ſhore cloſe on board: they will have 7 fathoms. At low water, or half tide, the bank will guide them, but on ſpring-tides it is overflowed; and then it will be neceſſary to have a care leſt you get on it.

" Ships likewiſe, who from the ſouthward have gone without Kuttubdea, muſt be on their guard, and keep the lead going, for fear of this ſhoal, which bears from Cuckold's point W. N. W. $\frac{1}{2}$ W. While you are entering the north end of Uckoia paſſage, it is better to have a boat on each bow, till you have rounded the point, and brought it to bear N. W. and then there is nothing to fear.

" Having given the Serrole ſhore a proper birth, it is neceſſary to look out for the ſhoals of Angor or Anghor-colley, which are dry at low water, and no way dangerous, with your eyes open, and the lead kept going.

" From Anghor-colley to Norman's point there is no danger in the leaſt, but regular ſoundings. Two miles to the northward of Anghor-colley are ſome fiſhermen's huts, where thoſe who are unacquainted with Chittagong river may get a pilot: but after all, it will not be prudent to let him bring you higher than the *Bunder*.

" Coming

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" Coming from the ſouthward, Chittagong river may be eaſily known by the following marks.

" Between Kuttubdea and Anghor-colley is moſtly woody. Being paſt Anghor-colley, between it and Norman's point, it is a white ſandy ſoil, and few trees near the ſhore. Next, between Kuttubdea and Anghor-colley, guide your eyes along the coaſt, to the northward; and you will ſee on a hill, near Norman's point, but more inland, a remarkable ſpreading tree, which for that reaſon is called *Kittaſol Tree*; at a diſtance you may ſee the tree as riſing out of the water, before the hill is perceived.

" Another mark is, that at Norman's point the colours are hoiſted, and may be ſeen with a glaſs 2 or 3 leagues off; but as this mark may be changed, or not hoiſted, and the Kittaſol tree is farther ſeen, the laſt is the moſt to be relied on.

" But as it may happen that a veſſel ſhould overſhoot the river's mouth, and get up between Chittagong and Sundeep, it will be neceſſary to ſay ſomething how to rectify ſuch a miſtake when committed.

" Firſt, If you are high up, a man from the main top may eaſily ſee Sundeep, which alone may guide you, by referring to the Draught; and *Satticone*, (Sette-khone, or Settacoon) in a clear day, may be ſeen as far to the ſouthward as Anghor-colley; for it is continued to *Shaw-bruſh*, (Shahbrooge) in appearance. Having found out your error, you may venture to coaſt it, by your lead, back; only keep ſomething farther off as you approach to the river's mouth; and being come oppoſite Kautwallea, which is known by a ſmall point to the northward, look in for the range of hills inland, and you will ſee a hill, when in one with Kautwallea creek, bearing E. by S. on which is a tree, ſomething like the Kittaſol tree: and, not to confound things, we ſhall call this *Umbrella Tree*; to the ſouthward of which you will ſee Shaw-bruſh, which appears to have 3 trees on it. The one really ſtands on another hill near it.

*Inſtructions for Chittagong River.*

" To enter the River of Chittagong, being out in the offing, keep Kittaſol Tree by Norman's Point, E. by N. $\frac{1}{2}$ N. and ſteer right in for it, taking care that the flood does not hoiſt you to the northward, which the bearings of the above tree will inform you of. Being come near Norman's point, give it a ſmall birth; and when you have entered in and come up with the high banks (for Norman's point is a low beach) nothing is to be feared, for you will have deep water all along the ſtarboard ſhore, within two thirds of a cable's length; and by this the *Middle Ground* is avoided; but be ſure you anchor before you come to the *Kella*, $\frac{1}{2}$ a mile ſhort, if you intend to go no higher; for then it requires ſome further conſideration.

" If I were to carry a ſhip, in the S. W. Monſoon, I ſhould hardly venture to croſs with a flood tide, but would rather chooſe the latter part of the ebb, taking care to have enough of it; for till you are arrived over, and ſhut in the other part, a S. W. or W. S. W. wind, with a flood tide, muſt naturally horſe you on the ſand to the northward of the channel, or croſſing place, it becomes then neceſſary to keep the north point of the Middle ground as

cloſe

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cloſe on board as the draught of your ſhip will admit: and if you were to range the Middle ground, which has regular ſoundings, inſtead of keeping the ſhore ſo cloſe on board, it will be ſtill better, as you will have the leſs diſtance to croſs over, and you may depend on 9 fathoms in croſſing: if you have a leſs caſt, it will be by bordering too near the north point of the Middle ground. Having got over to the other ſide, keep it cloſe on board, never venturing above half a cables's length off: and you will have 6, 7, and 8 fathoms, till you are up with the Firſt creek: afterwards expect no more than 3, with a flowing tide. Being come up with *Kouſnagar*, ½ a mile farther a-head, it is the proper place for you to anchor as cloſe inſhore as you can conveniently; for by this you will be more out of the way of the tide, which runs with great force. Here commences the firſt part of Chittagong town, called *Fringhey-Buzzar*,* and inhabited moſtly by Chriſtians; this being the place we have choſen for the building of craft, aſſiſtance is here moſt at hand; though if a veſſel is deſirous of going higher up ſhe may: but Eaſt of Shawbruſh Hill in the narrow, is a very ſtrong eddy and ſome uneven ground, hard. At the upper end is a ſmall creek, wherein a ſhip may be laid on ſhore to repair, and is more out of the way of the wind and tide than below.

"SUNDEEP is an iſland of large extent, which, with a good government might be made a place of conſequence: it is fertile, abounding with cattle, and has this advantage of the neighbouring continent, that there is no conſiderable wild beaſts of deſtruction, as elephants, rhinoceros, or tigers. Of jackalls and wild hogs, indeed, there are enough. Its ſituation with the Coaſt of Chittagong, and being at the mouth of the great river that goes to Dacca, gives it a preference, in my opinion, for a trade by ſhipping. I have coaſted it all round; and, excepting the north part, facing *Babnee* (or *Bominy*) found no danger, but what by adverting to the Draught may be avoided: however I cannot ſay much in favour of the paſſage between Babnee and Sundeep; for there are many ſmall ſands yet undiſcovered for want of time. On the weſt ſide, a remarkable tree, called *Dolio Goſs* (or tree) by the natives, is a very diſtinguiſhing mark to know where the city ſtand, which is farther known by a large grove of palm trees; for it ſtands a mile in land.

"To the ſouthward of the city, is a creek or river called Sittal, into which a ſhip of any burthen may go, having 4 fathoms at low water, about a mile in, which is the propereſt place to anchor and lie ſafe in any Monſoon: but there is ſome difficulty in getting in, becauſe the flood ſets ſtrong to the northward without; and before you can haul up, in the S. W. Monſoon, round the ſhoal, you will be ſet on the other point, as the reach in entering, lying S. E. makes the wind ſcant: you muſt therefore be obliged to wait for the proper time of tide, which is the laſt of the ebb; and then the flood will ſet you wholly in.

"All along the weſt ſide of Sundeep, which I have coaſted up and down, I have yet diſcovered no other danger than what I have laid down; and indeed it has been a general obſervation of mine, that where the courſe of the tide has run North and South, the channel has been the cleareſt of ſhoals; but the reverſe when it begins to run Eaſt and Weſt. I except the creek that connects two great rivers, which generally are clearer of ſhoals than any.

"One

* "The Franks' Market."

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" One thing I have to add is, that Weſt of Kuttubdea is ſaid to be a bank of ſand $\frac{1}{4}$ mile broad; which information I have from a Dutch captain who was forced in here; and therefore I believed it beſt to put it in my Draught, (though I have not yet been on it) that people may be on their guard. Between it and the north-weſt point of Kuttubdea, he ſays, he found from 16 to 17 fathoms, ſoft ground: its diſtance from Kuttubdea, by his account, is 16 Engliſh miles. He had on the bank 5 fathoms.

## DIRECTIONS FOR CROSSING THE HEAD OF THE BAY OF BENGAL.

### By Captain RITCHIE.

" THE navigation acroſe the head of the Bay is very eaſy during the N. E. Monſoon; for by keeping in a proper track, anchoring ground may be had in almoſt any depth, at pleaſure. The uſual practice of leaving the land at CHEDUBA* I do not approve of, eſpecially in the latter end of the ſeaſon, or in February and March; which times are ſubject to light winds and frequent calms for ſeveral days together: for, as the ſoundings in this track are from 50 to 100 fathoms, you run the riſk of being carried off the bank by the ſouthwardly currents, as there is ſcarcely any poſſibility of anchoring. The track I recommend, is to coaſt up the Arracan ſhore, as high as latitude 21°, or in ſight of the White cliffs, which may be ſeen in clear weather 13 leagues: taking a departure from the White Cliffs, ſteer W. $\frac{3}{4}$ N. or between the latitudes of 21° and 21° 20′ till you arrive at the Swatch, which is a hole or chaſm in the bank, of which more will be ſaid hereafter. The ſoundings in this track are various, as the banks formed by the channel of the Ganges project more or leſs into the ſea. The depths are ſeldom more than 30 or leſs than 12 fathoms, except in and about the meridian of the weſt point of the Ganges, where, in latitude 21° 19′ the depth is only 6 fathoms. It does not appear that there is any danger below the parallel of 21° 30′ between Chittigong and the Swatch. It muſt be obſerved, that in general the ſtreams of the ebb tides from the rivers run farther out to ſea than the flood tides run in; ſo that in caſe of a long calm, a ſhip may be driven too far out, unleſs ſhe takes the precaution to anchor in time.

" THE SWATCH, or *Swatch of no ground*, a chaſm in the bank, is ſituated between the

* " When you are got the height of *Cheduba Iſland*," ſays Mr. *D'Apr.s*, " and about 8 or 9 leagues to the weſtward of it, you ſhould ſteer N. W. till you get into 50 fathoms, mud, which is generally met with in 40 or 45 leagues, on that point of the compaſs. Thence ſteer W. N. W. and W. by N. to get ſoundings on the tail of the Ganges banks (the Sea Reefs.) You may near them in 12 fathoms, and they are eaſily known by the ſoundings, which are hard ſand. You find no mud but at the entrance of the ſeveral channels, which are formed by thoſe banks.

" Keep in the depth above-mentioned, not exceeding 15 fathoms; this will carry you to Ballaſore roads.

" There can be no direct courſe pointed out from the tail of the Sea-reefs to these roads, on account of the tides off the different mouths of the Ganges (Hughly River). The beſt method is to keep the lead conſtantly going.

" It is not always ſufficient to ſail to the height of Cheduba Iſland, to croſs from the eaſtern coaſt of the Bay, to Ballaſore roads; for you ſometimes, in this ſeaſon, meet with variable winds from N. E. to N. N. W. and with theſe winds you cannot make the courſe above mentioned. In this caſe, to ſecure your paſſage, you muſt work to the northward, till you are in ſight of the Broken iſlands, which form the ſouth part of Arracan river, from whence, with more certainty, you may croſs the Bay, and get ſoundings off the mouth of Hughly river, as above; only obſerve, that after paſſing Cheduba the tides of Arracan river have an effect."

latitudes

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latitudes of 21° and 21° 22′ North; and the middle of it lies about 50 leagues Weſt of the meridian of the White cliffs. The edges of it are not every where aſcertained; but, by the knowledge we have of its extent, it appears to be 9 leagues in length, from S. by W. to N. by E. and 5 leagues over. During the ſurvey, only one track was made acroſs it: by that, and the obſervations of other ſhips, there is no ground at the depths of 130 to 50 fathoms all over it. The north edge of it is only 5 leagues diſtant from the land, between which and it the depths are from 13 to 7, and 3 fathoms. Round the other parts, the depths are from 40 to 20 fathoms. It is much to be wiſhed that the ſhape and dimenſions of the Swatch were fully aſcertained, as well as the depths of water to ſome diſtance on every ſide of it, to the intent that ſhips might know their exact diſtance from the tails of the ſand and Ballaſore roads: however, the general knowledge that we have of it, will ſerve to correct the reckoning in a degree ſufficient to preſerve ſhips from any danger that might happen from a miſtake in the longitude, ſince the whole breadth of the chaſm is ſcarcely more than 5 leagues.

" Leaving the weſtern edge of the Swatch in latitude 21° 12′ the courſe is W. by S. ½ S. 15 leagues to the TAIL OF THE EASTERN SEA REEF, on which are 6 fathoms at low water. From hence the common anchoring place in Ballaſore roads bears W. by N. ½ N. 22½ leagues. But firſt it is neceſſary to ſteer Weſt, till you have croſſed the TAIL OF THE WESTERN REEF, which you will do in 7 fathoms. The channel between the two reefs, in this ſlant direction acroſs it, is 3 leagues over, the ground ſoft, and the depth 9 fathoms. The reefs are hard ground, and may be known by this circumſtance only: from the Weſtern reef, the water firſt gradually deepens from 7 to 14 fathoms; and afterwards as gradually ſhoals, till you arrive at the anchoring place in Ballaſore roads. The latitude of the Bankſhall flag-ſtaff I make 21° 30′ and the anchoring place in 5 fathoms in 21° 23′. The Peak of the Neelgur, vulgarly Nelgringe hills, bears W. N. W. from Ballaſore roads, diſtant 19 miles. It is ſituated with reſpect to Bulramgurry (or the Bankſhall) W. 4° 30′ N. diſtant 14 miles. It is evident that by the bearing of this peak, and the depth of water, the ſhip's place in Ballaſore bay may always be aſcertained in clear weather. The tail of the Weſtern reef is in 20° 57′ and of the Eaſtern one in 20° 59′. In croſſing the reefs, a ſhip ſhould come no higher to the northward than the latitude of 21°, which is the track pointed out in the above directions."

## THE TIDES IN THE BAY OF BENGAL.

UPON full and change days eleven o'clock makes high water, in latitude 21° 30′ almoſt the whole breadth of the Bay of Bengal. The motion of the high-water point is at the rate of 20 miles *per* hour in the open ſea; and the general direction of the flood is northwardly. By attending to theſe circumſtances, ſhips may always know the time of tide any where within ſoundings.

Within 15 or 20 miles of the coaſt, the ſetting of the tide is influenced by the ſhape of the coaſt, and the openings of the rivers. About midway between Point Palmiras and Chittagong,

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Chittagong, that is, at the mouth of the Murjattah river, the flood tide ſets due North, during the whole flood; but between that and the mouths of the Ganges and Megna rivers, the farther eaſtward you go, the more the tide inclines to the eaſtward of North, eſpecially during the laſt quarter of the flood. In like manner, between the Murjattah and Hughly, or Hoogly, rivers the tide inclines to the weſtward of North, and in the latter part of the flood ſets almoſt Weſt. Neither here nor on the eaſt ſide of the Murjattah does the tide ever quite ſlack; but at low water, by looking at the Chart, the above account of the ſetting of the tides will appear very conformable to reaſon and experience, both on account of the ſhape of the coaſt, and the indraught of the Ganges, Megna, and Hoogly rivers, whoſe courſes, being much longer than the intermediate ones, require a greater portion of tide, and a greater length of time to fill them.

In Ballaſore bay, and as high as Ingellee, the tides are influenced by the bearing of the coaſt. In the middle of the river's mouth they ſet North. Off Point Palmiras 8 or 9 leagues, the courſe of the flood is E. N. E. to N. E. by E. but nearer the land the tide follows more the direction of the coaſt; ſo that near the Point a ſhip will be ſet in towards Kannaka bay, and with a large offing will be ſet to the eaſtward.

Along the Coaſt of Chittagong the tide ſets moſtly northward; that is, parallel to the coaſt.

The Times of High Water, at Full and Change, between BALLASORE and CHITTAGONG, are as follow, *viz.*

| Places. | Hours. | Min. |
|---|---|---|
| Latitude 21° 30′ in the Bay | 11 | 00 |
| Ballaſore Roads | 9 | 30 |
| Ballaſore Bar | 10 | 10 |
| Weſtern Brace | 9 | 36 |
| Eaſtern Brace | 9 | 45 |
| Ingellee | 11 | 0 |
| Kedgeree | 11 | 30 |
| Entrance of the Roymongul River | 11 | 30 |
| Ditto of the Hooringottah | 12 | 00 |
| Bar of Chittagong | 1 | 00 |
| Bominy Harbour | 2 | 30 |
| Iſlamabad | 1 | 30 |



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## TIDE TABLE for the Western Part of the BAY of BENGAL and for the HUGHLY or HOOGLY RIVER.

| Days of the Moon. | Calcutta | Fulta. | Culpee | Rogues Creek. | Cajoree, or Kedgeree. | Angellee or Ingerle Road. | Eastern Reef. | Western Brace. | Balla-sore Bar. | Balla-sore Roads. | Kannaka Bay. | Point Palmiras. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NAMES of the PLACES. | | | | | | | | | | | |
| Full and change. | h. m. 3.0 | h. m. 1.15 | h. m. 1.45 | h. m. 12.30 | h. m. 11-30 | h. m. 11.0 | h. m. 9.45 | h. m. 9.36 | h. m. 10.10 | h. m. 9.30 | h. m. 8.27 | h. m. 8.30 |
| I. | 3.48 | 2.18 | 1.33 | 1.18 | 12.48 | 12.3 | 11.18 | 10.33 | 10.53 | 9 48 | 9.3 | 9.0 |
| II. | 4.36 | 3.6 | 2.21 | 2.6 | 1.36 | 12.51 | 12.6 | 11.21 | 11.43 | 10.36 | 9.51 | 9.43 |
| III. | 5.24 | 3.54 | 3.9 | 2.54 | 2.24 | 1.39 | 12.54 | 12.9 | 12.31 | 11.24 | 10.39 | 10.36 |
| IV. | 6.12 | 4.42 | 3.57 | 3.42 | 3.12 | 2.27 | 1.42 | 12.57 | 1.19 | 12.12 | 11.27 | 11.24 |
| V. | 7.00 | 5.30 | 4.45 | 4.30 | 4.00 | 3.15 | 2.39 | 1.5 | 2.7 | 1.00 | 12.15 | 12.12 |
| VI. | 7.48 | 6.18 | 5.35 | 5.18 | 4.48 | 4.3 | 3.18 | 2.33 | 2.55 | 1.48 | 1.3 | 1.00 |
| VII. | 8.6 | 7.6 | 6.23 | 6.6 | 5.36 | 4.51 | 4.6 | 3.21 | 3.43 | 2.36 | 1.51 | 1.48 |
| VIII. | 9.24 | 7.58 | 7.11 | 6.54 | 6.24 | 5.39 | 4.54 | 4.9 | 4.31 | 3.24 | 2.39 | 2.36 |
| IX. | 10.12 | 8.42 | 7.59 | 7.42 | 7.12 | 6.27 | 5.42 | 4.57 | 5.19 | 4.12 | 3.27 | 3.24 |
| X. | 11.00 | 9.30 | 8.47 | 8.30 | 8.00 | 7.15 | 6 30 | 5.45 | 6.7 | 5.00 | 4.15 | 4.12 |
| XI. | 11.48 | 10.18 | 9.35 | 9.18 | 8.48 | 8.3 | 7.18 | 6.33 | 6.55 | 5.48 | 5.3 | 5.00 |
| XII. | 12.36 | 11.6 | 10.23 | 10.6 | 9.36 | 8.51 | 8.6 | 7.21 | 7.43 | 6.36 | 5.51 | 5.48 |
| XIII. | 1.24 | 11.54 | 11.11 | 10.54 | 10.24 | 9.39 | 8.54 | 8.9 | 8.31 | 7.24 | 6.39 | 6.36 |
| XIV. | 2.12 | 11.42 | 11.59 | 11.42 | 11.12 | 10.27 | 8.42 | 8.57 | 9.19 | 8.12 | 7.27 | 7.24 |
| XV. | 3.00 | 1.30 | 12.47 | 12.30 | 12.00 | 11.16 | 9.30 | 9.45 | 10.7 | 9.0 | 8.15 | 8.12 |

## REMARKS ON THE BORE.

By Major JAMES RENNEL, F. R. S.

"THE Bore (which is known to be a ſudden and abrupt influx of the tide into a river or narrow ſtrait), commences at Hughly Point (below Fulta), the place where the river (Ganges) firſt contracts itſelf, and is perceptible above Hughly town; and ſo quick is its motion that it hardly employs 4 hours in travelling from one to the other, although the

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the diſtance is near 70 miles. At Calcutta it ſometimes occaſions an inſtantaneous riſe of 5 feet: and both here and in every other part of its track, the boats on its approach immediately quit the ſhore, and make for ſafety to the middle of the river,"

## THE COASTS OF ARRACAN AND AVA,

### From Captain RITCHIE.

CAPTAIN *Ritchie*, having ſailed, in order to ſurvey theſe parts, from the end of the Sea Reefs, to the White Cliffs of Arracan, obſerves that his moſt ſouthern latitude had been 20° 46' North, and the greateſt depth of water 74 fathoms, or in general too great for anchoring; therefore he adviſes all ſhips that mean to croſs the head of the bay, to keep in the latitude of 21° North, or a little to the northward of it, otherwiſe they may be drove out of ſoundings; or be obliged to anchor in too great a depth of water to attend the ſea and land-breezes conveniently; add to this that theſe breezes do not take place regularly at any conſiderable diſtance from the ſhore any where about the Bay of Bengal.

Dombuck or St. Martin's river, at the ſouth end of the White cliffs, is ſuppoſed to be the end of the Coaſt of Chittagong, and the beginning of the COAST OF ARRACAN, or *Arakan*, and properly RECKAN.

From the point at this ſouth end, 40 miles to the S. S. E. lies the ſmall ISLAND OF ST. MARTIN, to the weſtward of which about 8 miles is a reef of breakers with 2 fathoms water cloſe to them, on all ſides, and 4 fathoms at a ſmall diſtance from them. Between the iſlands and the reef you have 10 fathoms, fine ſoft bottom. This was called ST. MARTIN'S REEF by M. *Ritchie*, who diſcovered it on the 8th of December, 1770, a few hours before the *Middleton* from Pegu, *Dennis Holland*, maſter, was loſt upon it.

From St. Martin's iſland to Moſque point the north point of the entrance into Arracan river, the diſtance is about 9 leagues to the S. E. Three leagues S. S. W. off this point lies a ſmall rocky iſland, very little above the level of the ſea, with only a ſmall patch of ſand covering the north end of it; it is exceedingly dangerous both on account of its ſmallneſs and lowneſs, of its being ſteep-to, and far off land. M. *Ritchie* called it OYSTER ISLAND, from the multitude of that kind of ſhell fiſh that are growing to it.

They reckon 15 miles S. E. by S. $\frac{1}{2}$ S. from Moſque point to the north end of the weſternmoſt of the BROKEN ISLANDS: theſe are three in number, and ſituated at the mouth of Arracan river, or rather they form the eaſt ſide of its entrance; we mean here the common track into it, for it ſeems that there are paſſages into the river at all ſides, and more over between the weſternmoſt two, there is very good anchorage for ſhips, from 13 to 15 fathoms, fine ſoft bottom, and which lies in a N. N. W. and S. S. E. direction. Theſe iſlands are mountainous, woody and rugged, without any appearance of inhabitants or cultivation; and this deſcription may ſerve for the whole coaſt of Arracan to the northward as well as to the ſouthward of them, which preſents a moſt dreary proſpect from the ſea. The ſouth ends of the Broken iſlands are beſet with great black rocks, many of which being above water make a very rugged appearance, but theſe do not extend to any great diſtance from



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the land, and are not dangerous, as they can be ſeen. At the ſouth end of the weſternmoſt iſland a ſpit of hard rough ground projects into the ſea, but ſtill leſs dangerous than the rocks, as it has 11 fathoms water on it, very coarſe gray ſand with black ſpecks.

From the ſouth end of the Broken iſlands, which there form a bight to the north end of Cheduba iſland, the courſe is S. S. E. 20 leagues: about half way are two cluſters of great rocks above water, pretty near each other (called *The Terribles*). CHEDUBA is ſituated between the latitudes of 18° 36′ and 18° 50′ North, extending N. W. and S. E. in length about 20 leagues. "It is inhabited, and partly cultivated for rice, on the ſide next the main land." At its north end there is a large reef of rocks which extends into the ſea a league or more, and is dangerous to approach in the night; but in the day-time it may be ſeen in good time to be avoided, for many of the rocks appear a conſiderable height above water. About 4 miles from that ſhore in a direction S. W. and N. E. you have no leſs than 13 fathoms water, but with a variety of ground, ſuch as black rock, coral rock, and coarſe gray ſand with ſhells and ſmall ſtones, both rotten and of the pebble kind. At 15 miles weſtward of the north end of the iſland, you find no ground at 100 fathoms.

*Note.* About 10 miles to the northward of Cheduba 12 o'clock makes high water, on full and change days of the moon; the flood ſets N. E. by N. about 2 miles *per* hour on the ſprings; and the ebb runs W. S. W. about half as faſt. Mr. *Ritchie*, who experienced there a current ſetting ſtrongly to the northward along the ſhore, makes the following remark: "Navigators of the bay," ſays he, "generally aſſert that the current never ſets to the northward upon this coaſt, at this ſeaſon of the year (December); but here is a ſtrong proof of the contrary: the truth is, they do not go near enough the ſhore, either to get the benefit of the ſea and land-winds, or of the changes in the currents."

A chain of ſmall iſlands is lying off the ſouth-eaſt end of Cheduba, ſeemingly an appendage of that iſland, and linked together by a ſhallow rocky reef upon which the ſea breaks very high in ſeveral places: the ſouthernmoſt iſland of this chain lies 13 miles S. E. by E. from Cheduba; it is of a circular form, and its greateſt width does not exceed $\frac{1}{4}$ a league; it is ſteep-to on every ſide, except to the eaſtward, where there is a ſpit on which the ſea is breaking: about the middle of the iſland there is a little hummock covered with trees, one of which, overtoping the reſt, makes it very remarkable. This iſland is called FOUL ISLAND; Mr. *Ritchie* named it *Chriſtmas Iſland*: on the reef to the northward of it you have no leſs than 6 fathoms water, rocks, and coarſe brown ſand. And 8 or 9 miles to the S. E. by S. nearly, and on the ſame reef, you come to FRESH-WATER ISLAND, a very ſmall ſpot above water, with a ſhoal projecting above a mile on the eaſt ſide, and ſoundings from 8 to 6 fathoms all round: this muſt be the "Falſe Iſland" of Captain *Charles Newland*.

TREE ISLAND, (called *Foul Iſland*, and alſo St. Stephen's Iſland by M. *Ritchie*), lies about S. E. by S. 10 leagues from the true Foul iſland; it is ſituated in the latitude 18° 6′ North, and at 12 miles diſtance from the coaſt, "We had," ſays Mr. *Ritchie*, "23 fathoms water very near it, and ſaw no appearance of breakers or foul ground near it." This is a high round mountain in the ſea, in the form of a conoid, and totally covered with trees. The main

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main land here preſents us with a triple ridge of vaſtly high mountains, which appear very ſmooth and regular, and ſloping gradually at both ends, but the ſlope to the northward is the moſt abrupt: theſe are the extremity of the Mog mountains which ſeparate the coaſt of Arracan from

THE COAST OF AVA; this extends in a ſouth direction above 40 leagues to Cape Negrais. About 14 leagues S. S. E. ½ S. from Tree Iſland, and near 10 miles from the ſhore, lies a cluſter of very large rocks called CHURCH ROCKS on account of their appearance, and which are deſcribed in the following ſection: Mr. *Ritchie* gave them the name of *St. John's Rocks*. The ſoundings in this courſe are from 27 to 30, 35 and 40 fathoms, 2 or 3 leagues off ſhore.

Twelve leagues S. ½ W. from theſe rocks are the CALVENTURAS, or *Calventura Rocks*, (the *Buffaloe Rocks* of Mr. *Ritchie*) in latitude 16° 52′ North, diſtant from a ſandy point of the mainland above 4 miles, ſo that there is a fine paſſage, with 18 fathoms water between them and the ſhore.

The Calventuras are in two diviſions which bear N. W. by W. and S. E. by E. from each other. The ſouth-eaſtern diviſion conſiſts of two high rocky iſlands covered with trees and buſhes; they are joined together by a ſhoal reef of rocks under water, upon which there is a ſingle rock above water, about half-way between the iſlands. At ¼ of a mile from the eaſternmoſt of theſe rocks, between them and the ſhore, you have no leſs than 8 fathoms water, coarſe gray ſand, with ſhells, ſmall ſtones, and broken corallines.

The weſtern diviſion is compoſed of 7 black rocks of different magnitudes and uncouth figures; *one reſembles an old church* with a mutilated ſpire; another ſtands upon a very ſmall baſe, and is ſo amazingly bulky at the top, that one would think the next wave is going to beat it down into the ſea.

Twenty-five miles South of the Calventuras are the BUFFALO ROCKS: you have ſoundings in this courſe from 10, 17, 14, 13, 18 and 20 fathoms, at 4 or 5 miles off ſhore. The Buffaloes, called *Calventura Rocks* by Mr. *Ritchie*, are a heap of very rugged rocks, high above water, in latitude 16° 20′ to 16° 23′ North, and lie about one league diſtant from the land. About a mile to the weſtward of them you have no leſs than 20 fathoms water, fine ſoft mud. Strangers coming from the ſouthward, in the night, ought to be cautious how they ſtand in here, for the ſoundings are very regular cloſe to theſe rocks.

CAPE NEGRAIS lies 21 miles to the South of the Buffalo Rocks, and is the weſternmoſt point of the great iſland called after its name; there the coaſt turns to the S. E. and at 7 miles from the cape lies POINT PAGODA, or the ſouth point of *Great Negrais Iſland*, which is eaſily known by a huge rock above water very near it, and a hill on which is a pagoda: the weſtern coaſt of this iſland runs N. by W. ½ W. it is of a moderate height, rugged at the top, and may be ſeen 9 or 10 leagues off; there are along it ſeveral iſlands with a ſhoal, cloſe to which are 4 fathoms water, and whoſe weſternmoſt point lies 3 miles off Pagoda point.

Point Pagoda and *Point Porean* form the entrance of the river of Ava; the firſt on the weſt, and the other on the eaſt ſide; they lie from each other S. E. by E. and N. W.



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by W. 10 miles diſtant: and about 5 miles up the river is the *Little Negrais* Iſland, remarkable by its hill.

The whole of the Coaſt of Ava which we have been deſcribing, from the extremity of the Mog mountains to Negrais, is a continual ſcraggy ridge of land tolerably high, broken into cliffs of reddiſh hearth in many places, and generally with low trees and bruſhwood, without any ſigns of cultivation or inhabitants, towards the ſea-coaſt; the firſt low land you meet with is Point Porean, which is totally covered with wood.

Five miles South of Point Pagoda, before the entrance of Ava river, lies *Duran Diva*, or DIAMOND ISLAND, about 1¼ mile long and a mile broad; it is low, covered with wood, and ſurrounded with ſhoals.

About 8 miles S. by E. from Diamond iſland is a very dangerous reef, called by the French and the Engliſh the *Drowned Iſle*, or Sunken Iſland, and by the Portugueſe LA GUARDA, (the Guar) which the Engliſh ſeamen have corrupted into a variety of names; or ALAGADA (overflowed). This reef, by Captain *Ritchie's* obſervations, is ſituated in the latitude 15° 42′ to 15° 43′ North: and what is to be ſeen of it is a ledge of rocks juſt above the ſurface of the water, extending N. E. and S. W. about a mile in length and very narrow, but the ſea breaks all about it to a conſiderable diſtance*. When the weſt end of Diamond iſland, and the eaſt end of Little Negrais hill are juſt drawing into the ſame line, La Guarda reef is alſo in the ſame direction, *viz.* N. N. E. at the ſame time the weſtern extreme of Negrais bore North; and there are over-falls from 19 to 30 fathoms, rocky ground. "This laſt remark," ſays Mr. *Ritchie*, "ſhews the exact poſition of Sunken iſland with reſpect to the land of Negrais, and might be of great uſe to ſhips paſſing this way, as by help of it they might round La Guarda very cloſe, without fear of being drove off the land; and by that means avoid going through the *Race of Negrais*, in which there is a very ſtrong irregular tide, foul ground, and a confuſed ſwell, even in the ſmoothest weather. The race is between the ſpit of Diamond iſland and La Guarda."

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## INSTRUCTIONS FOR THE CHANNEL BETWEEN DIAMOND ISLAND, AND ALAGADA, OR THE DROWNED ISLE;

## AND FOR SAILING FROM PAGODA POINT, ALONG THE COASTS OF PEGU AND ARRACAN, TOWARDS BENGAL, IN THE N. E. MONSOON.

By Captain GEORGE HAYTER†.

### 1° FROM *DIAMOND ISLAND* TO *CAPE NEGRAIS*.

"SHIPS coming from the eaſtward endeavour to fall in about 9 or 10 leagues to the eaſtward of DIAMOND ISLAND. About 14° 30′ North, and 23 leagues to the ſouth-eaſtward of that iſland, you will have ſoundings, in 65 fathoms water, fine blackiſh

* Captain *Walter Alves* of the ſnow *Victoria*, 1759, obſerves that in the S. W. monſoon the ſea breaks very high on this reef; but that the breakers do not appear in the N E. monſoon, the wind being always off ſhore.

† Captain *George Hayter*, then an officer in the *Worceſter*, was afterwards captain of the *York* Indiaman.

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ſand, when you muſt endeavour to get to the northward, having regard to the tides out of the Gulf of Martaban, which I obſerved to ſet ſtronger to the weſtward than to theeaſtward.

" In 15° 24′ north latitude, and about 10 leagues to the eaſtward of Diamond iſland, you will have 20 fathoms water, ſand, and ſome ſmall ſhells; and, if clear weather, you may from the maſt head ſee the land to the N. N. E. which is a part of Baragou (Bragu) iſland, being a low land with trees. I would adviſe to ſteer as far northerly as the wind will permit, till you ſhoal to 10 fathoms; or, if apprehenſive of the winds being ſcant, to 7 fathoms, ſoft ground. Keep in that depth of water, and not under it; and when you have ſight of Diamond iſland, ſteer a little wide of it: as ſoon as you get it to bear off you N. W. by N. it will be beſt to haul more off from it, increaſing your depth to 9 and 10 fathoms; then if you ſteer W. N. W. it will keep you in or near that depth (having regard to the tides) till the iſland is brought to bear North of you about 4 miles diſtance: take care not to exceed 10 fathoms, in which depth you will have ſoft ground. Should you be obliged to turn it, you muſt not deepen your water above 10 fathoms, nor ſhoal it under 7; and if you find, ſteering W. N. W. it deepens or ſhoals, correct your courſe accordingly.

" From the ſouth-weſt point of *Diamond Iſland*, a ſhelf of rocks extends near $1\frac{1}{2}$ mile in length, at low tide very little above water, and moſt of them covered at high water: from this a dangerous reef runs to the S. S. W. 6 or 7 miles, on which the ſoundings are very irregular; it is not ſafe for any ſhip to venture over it, as there are ſeveral rocks covered only with $2\frac{1}{2}$ fathoms water.

" When Diamond iſland is bearing North, about 4 miles, and you in 10 fathoms, mud, ſteer W. by N. in much the ſame depth, taking care not to ſhoal it till you bring the *Hill on Little Negrais*, very near on with the eaſtmoſt point of Diamond iſland: then haul away to the ſouthward, ſo as to keep them in the ſame poſition, taking care not to ſhut in any part of Negrais hill with the iſland: this will carry you along the eaſt ſide of the reef, at about $\frac{1}{2}$ a mile diſtance, in a depth of water from 10 to 12 fathoms. Steering this courſe, as ſoon as you deepen to 15 fathoms, and no ground with the hand line, haul to the weſtward, till you again get ſounding, taking care not to go under 10 fathoms. In rounding the reef, if you have Little Negrais hill near all ſhut in with the iſland, and in hauling to the weſtward, if you ſhoal ſuddenly, haul off immediately South, or S. S. E. for when you have the weſternmoſt part of the hill, juſt open with the weſternmoſt point of Diamond iſland, there is a dangerous rock, which I take to be the eaſternmoſt part or point of the pitch of the reef: Eaſt of this, leſs than a cable's length, you will have 7 fathoms water; and Weſt, or about W. by S. from it, lies another rock which you are abreaſt of, when you have the weſternmoſt point of Diamond iſland on with the hollow on Little Negrais hill. I would adviſe, by all means, your boat to lie on the eaſtern pitch of the reef, or near it, in 6 or 7 fathoms: then you may round her about 2 cables' length, by which you will be certain to avoid *a dangerous rock*, that lies between the pitch of this reef, and the Drowned iſle, or Alagada, having 14 fathoms at half a cable's length from it: on this ſeveral ſhips

have

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have ſtruck, and, to mention one, his majeſty's ſhip *Exeter*, commanded by Lord *Harry Pawlet*, in the latter end of November, 1748.

" In ſounding the reef at that diſtance, you will have from 10 to 11½ fathoms; take particular care, after you are paſt the weſternmoſt rock (which you will know by the marks for it before mentioned) not to ſhoal your water, by hauling to the northward, till the weſternmoſt point of the Great Negrais is brought to bear N. ¼ E. and Diamond iſland N. E. ½ E. you may then ſteer for the weſternmoſt point of Negrais, which is termed CAPE NEGRAIS, having regard to the tides; this courſe will carry you along the weſt ſide of the reef, in 9, 10, 11, 12, or 13 fathoms.

" Obſerve, that after you are paſt the weſternmoſt rock, before mentioned, and in 10 fathoms water, (where we anchored) about W. S. W. one mile diſtance, lies a bank on which we had but 7 fathoms; before we came to it, we had 14, and in about two cables length from it, 7 fathoms, hard ground: to the W. S. W. the depth increaſed to 14 fathoms; not having time to ſpare, we could not examine it by ſounding farther, but I do not think it unreaſonable to ſuppoſe, that this ſhoal may be near adjoining to the rock before mentioned, on which the *Exeter* ſtruck, 1748. [The weſternmoſt point of Great Negrais bearing N. ¼ E. eaſterly; the ſouth point or Porean iſland E. N. E. ½ E. the Alagada ſouth-weſterly to S. by W. weſterly; the Little Negrais hill, very near half way between Diamond iſland and Pagoda point.] In keeping in 9½ or 10 fathoms on the reef, you will be ſure to avoid it; when you bring Little Negrais hill, within half its length, on with Pagoda point, which will bear about N. E. ¼ E. you will have 13 fathoms, and Diamond iſland from E. by S. to E. by S. ½ S. you may then ſteer directly in for Pagoda point. You will gradually ſhoal your water to 6 fathoms, which is a good depth to round the point in, at about 1, or 1½ mile diſtance; though when it bears about Weſt of you, you will find that depth a great deal nearer.

" If the wind ſhould oblige you to go more weſterly, ſo as to ſhut the hill on Little Negrais in with Pagoda point, take care not to bring the point more eaſterly than E. N. E. nor borrow nearer the ſhore than 5 fathoms, on account of a ſhoal which runs W. N. from Pagoda point, above a league. In this depth you will be about 4 miles from the ſhore (if you are not to the northward of the red cliff, where the ſhoal ends), and then find deeper water, having 10 fathoms, within 2 miles of the ſhore.

" You may anchor in about 6 fathoms, the point bearing from N. N. W. to W. N. W. if you ſhut the point more in, the channel grows narrow. In coming out ſteer ſo as to make a S. W. ½ W. courſe good, allowing for the tide*, which will carry you out in 6 fathoms or 6½; and when Diamond iſland bears S. E. ½ E. or S. E. by E. off, you are without the ſand that ſtretches W. N. W. from Pagoda point, and as far to the northward as the northernmoſt red cliff you ſee."†

2° FROM

* There is obviouſly a miſtake here, which we have been unable to correct.

† The following particulars, tranſcribed from the journal of the Snow *Amazon*, country-ſhip, in 1786, will not be improperly added to Captain Hayter's deſcription.

" Monday, January 23d. At day-light ſaw the land on the weather bow. At 7 found it was the land about Cape Negrais. At 8 the extremes from N. E. by N. to Eaſt. At 9, Diamond Iſland E. by S. ½ S. Cape Negrais's point E. by W. ¼ N. then

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## 2° From *CAPE NEGRAIS* to the *CALVENTURAS*.

" TO Cape Negrais you may, when obliged to turn it, ſhoal your water to about 10 fathoms, when you will be within 2 or 2½ miles off the ſhore; and not to ſtand further off than 18 or 20 fathoms at moſt.

" The rocks called the BUFFALOES, are ſingle high rocks at about 2½ miles from the ſhore, ſeveral of them white, and extending from North to South 2½ or 3 miles: they lie North from Cape Negrais, in latitude 16° * 14′; you may paſs them at about 1½ mile diſtance, and will have then 13½ and 14 fathoms water.

" N. ½ E. 10 miles from the Buffaloes, lies an iſland 2½ or 3 miles from the ſhore; it is called BROKEN ISLAND†, as at a diſtance it appears uneven and craggy, eſpecially from the northward: when you come up with this iſland you gradually deepen your water, and abreaſt of it will have 25 fathoms, mud, 4 miles off ſhore: you will alſo juſt get ſight of the Calventuras, which bear N. ½ W. from it.

" If the wind and current ſhould be ſo favourable that you may ſail without theſe rocks, endeavour to keep in 40 or 50 fathoms, which depth to the weſtward of them, you will find very near; for which reaſon it is adviſable to keep a good offing in the night, and frequently to uſe your lead and line, the currents being ſubject to change, as it has been often experienced.

" Ships that go without the CALVENTURAS, ſeldom ſee the land, unleſs at a very great diſtance, till they make the iſland Cheduba, which lies in latitude 18° ‡ 44′ North; but I think the going within theſe rocks, is by much, the moſt expeditious method, as there is good anchoring along ſhore; and by being near the land, you are more likely to meet with land-winds, which blow but a little diſtance from the land, beſides the advantage of anchoring when both wind and current are againſt you, and at the ſame time of being more out of the current's way.

" In January 1758, in going this paſſage, we were from the Broken iſland, (in latitude about 16° 30′ North) 5 days beating, and gained but 6 miles, when ſeeing a ſmall veſſel paſſing within the Calventuras, ſtood in and ſpoke with her; ſhe told us it was a good channel; we ſtood inſhore, and next day turned through, the wind being right an end.—

then in 17 fathoms, ſtiff bottom. At ½ paſt 10 the Little Negrais N. E. ¼ N. Diamond Iſle E. N. E. and juſt diſcovering from the main yard, the Alagada, or Sunken iſland, even with the water's edge, the water breaking on it; ſoundings, 19 fathoms, ſtiff ground. At noon the Great Negrais N. N. E. ¼ E. 8 or 9 leagues; the land to the Northward N. ¼ E. Small Negrais N. E. by N. Diamond Iſland N. E. ¼ E. the Alagada ſeen from the deck S. E. by E. ¼ E. to S. E. 2 or 3 miles, 17 fathoms, ſand.

" At 9 A. M. nearly, the longitude, per mean of three obſervations of the Sun and Moon, was found to be 94° 4′ Eaſt of Greenwich, agreeing with my other obſervation to 5 miles. Moſt books have placed Cape Negrais, and the Coaſt much too far to the Weſtward."

* Between 16° 20′ and 16° 23′, according to Mr. *Ritchie*, who calls them *the Calventuras*.

† Captain *Ritchie* takes no particular notice of this iſland.

‡ Between 18° 36′ and 18° 50′ according to Captain *Ritchie*.



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In December following of the ſame year, made Cape Negrais the 4th, did not ſtretch in nearer than 6 leagues: got ſight of the Calventuras the 8th; and the 12th finding that we had gained but very little ground, ſtood in abreaſt of the Broken iſland, and came to in 23 fathoms, mud, to wait for the land-wind: kept inſhore, as the year before, and the 16th were abreaſt of the northernmoſt part of Cheduba iſland. The 19th we were off Arrakan gut, where we met a ſmall country veſſel, who had been one month and 4 days from Negrais, and had ſtood off the land, only keeping it in ſight. The firſt time of our going along ſhore, we did not fail in the night, (as this coaſt, both by our pilots and the French accounts, is ſaid to be dangerous, and no anchoring,) ſo that we were 9 days to the north part of Cheduba iſland. But to return:

"From the Broken iſland N. N. E. about 6 or 7 miles, lies a ſmall iſland, that has a ledge of rocks running from it to the S. W. near 2 miles, on which the ſea breaks ſometimes; and near the iſland ſome rocks juſt appear above water.

"N. by E. or N. $\frac{1}{4}$ E. about 8 or 9 miles from Broken iſland, lies a very remarkable *Single high Black Rock*, about $3\frac{1}{2}$ or 4 miles diſtant from the ſhore. When you are paſt Broken iſland, I would adviſe you to go no nearer the reef of rocks than 23 or 25 fathoms; and when you are to the northward of the Single high rock, 3 or 4 miles, you may ſhoal your water on the main to 16 fathoms, without fear, when you will be 4 miles from the ſhore. There is a very good and clear paſſage between the Calventuras and the main land.

"Theſe rocks are in three diviſions; the northernmoſt, which, at a diſtance, appears like a ſingle rock, conſiſts of one large and four ſmall rocks near it, and lies in 16° 50′ North. The ſouthernmoſt lies from this S. E. $\frac{1}{2}$ S. in latitude 16° 46′; it is by much the largeſt, and at a diſtance it appears alſo as ſingle; but it conſiſts of one large rock and two ſmall ones cloſe to it, all three covered with wood: one of theſe ſmall rocks is very remarkable, having a paſſage through it like the arch of a bridge. From this N. $\frac{3}{4}$ W. about 2 miles, lies the other diviſion, which is a ſingle high rock, or iſland, covered with wood; when it bears W. by S. or W. S. W. of you, it has a very great reſemblance to a man's head and face: this iſland lies from a ſandy point on the main W. by S. $\frac{1}{2}$ S. 7 or 8 miles; the ſouthernmoſt of the Calventuras is about 3 leagues from the main.

"In going through this channel, if you have a leading wind, keep mid-channel, where you will find 20, 22, 23, and 24 fathoms, ſoft ground. If you have a weſterly wind, and be obliged to turn it through, you need not apprehend any danger, provided you ſhould obſerve the following directions: *viz.* Take care, before you bring the ſouthmoſt Calventuras to bear about W. N. W. not to ſhoal your water on the main under 13 fathoms, hard ſand, nor towards the iſland, under 16 fathoms, hard ground, which you will have when they bear about N. W. diſtance 2 miles from you. When you bring the iſland, or rock, to bear more weſterly than W. N. W. do not venture to ſhoal your water on the main, under 16 fathoms, on account of a *White Rock* above water, about the ſize of a long boat, and lying Eaſt from the ſouth Calventuras 1 mile off ſhore. At a mile diſtance from this

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this rock to the weſtward, is foul ground; you ſhoal from 15 fathoms, ſoft ground, to 8 fathoms, hard, at one caſt, as we ſounded in our boat. From hence cloſe to the rock, very irregular ſoundings of 8, 5, 6, 7, 5, 8, 5, rocky, till within $\frac{1}{4}$ of a mile from the rock, at which diſtance, or rather more, are ſeveral rocks near the ſurface of the water, on which the ſea breaks. We had, at about 8 yards diſtance from them, 4 fathoms water, and $4\frac{1}{2}$: along ſide the White rock, that we could juſt touch with our oars, we had 3 and $3\frac{1}{2}$ fathoms.

" In ſtanding towards the Calventuras, do not ſhoal your water under 18 fathoms, hard ground, which depth you will have at $1\frac{1}{2}$ mile diſtance from the ſouthmoſt; and at 1 mile from the northmoſt of the two eaſtern diviſions of the Calventuras, the true channel is ſoft mud. You may borrow within 2 or $2\frac{1}{2}$ miles of the *Sandy Point*, on the main: this point has ſeveral remarkable black rocks, on the beach cloſe to, and ſome in the water. From Sandy point to the northward runs a reef of rocks near one mile; and about $\frac{1}{4}$ a mile from the ſhore, within them, appears like the entrance of a river, with very remarkable high large trees; to the northward of this point, N. by E. 4 miles, lies a *Sandy Iſland*, with trees on it, near a mile diſtance from the ſhore. In turning up do not venture nearer this bank than 12 fathoms, which you will have within $1\frac{1}{2}$ mile diſtance from it: if in the night-time, and a turning breeze, I would not adviſe you to ſhoal under 20 fathoms, and not farther off than 26, till you are 4 leagues to northward of the Calventuras.

" As you get more northerly, you find the water rather deepens, when you may ſtand off to 35, but be ſure not to get out of ſoundings, for fear of its falling calm: you may ſtand in again to 23 and 22 fathoms, in which depth you will be about 4 miles from the ſhore. There are ſeveral ſmall iſlands along this ſhore, and very near it one pretty long, extending North and South or thereabout, near one league: the body is in latitude 17° 4′; at its north end lies a Sandy Iſland, with a remarkable large tree on it, off which there are ſome rocks to the northward, at a little diſtance; the ſouth end has likewiſe ſome breakers at near $\frac{1}{2}$ a mile diſtance from it: abreaſt of this iſland, about 5 miles off, you will have 25 fathoms, ſoft ground."

## 3° From the CALVENTURAS to FOUL ISLAND.

" FROM the northernmoſt of the Calventuras, about N. $\frac{1}{4}$ W. or north-weſterly, in 17° 22′ North latitude lie the Church * Rocks, at leaſt 5 leagues from the main. They conſiſt of one large and three ſmall ones; the large one is high, and when bearing from you N. W. appears like a circular fortification, with a building in the middle; two of the ſmall ones lie about E. by N. from it; the other about Weſt or W. $\frac{1}{4}$ S. and very near it. When they bear from S. W. by S. to S. S. W. the large one has very much the appearance of a country church with a ſquare tower, from whence they got their name.

* Mr. *Ritchie* calls theſe *St. John's Rocks*.



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Within theſe rocks, or about 2 miles diſtance, you will have 36 fathoms water, ſoft mud; the main here appears to be without danger, but cloſe to, where are ſeveral rocks above water and ſmall iſlands. Four leagues to the northward of the Church rocks, you may anchor near the ſhore within 2 miles, or thereabouts, in 14½ or 15 fathoms, mud.

" From the Church rocks, about N. ¾ W. lies a large iſland, the body of it in 17° 57′ North, which I have called * TREE ISLAND, from its being full of wood, and having a remarkable ſingle tree on a low point to the northward. This iſland ſeems to lie about S. W. and N. E. a full league, or 1½ league in length; it riſes gradually from the S. W. to an high hill, and declines to the north-weſtward much ſteeper: from the northward runs a low point near ½ a mile, on which is a remarkable ſingle tree, ſeeming to ſtand in the water: from the S. W. point, better than half way to the hill on it, is a remarkable range of high trees much above any of the reſt.

" This iſland lies from the bluff point on the main W. by N. ½ N. diſtance 8 leagues. The land, from this point, falls into deep bays, both to the northward and ſouthward; within the point, and about Eaſt from it, 1 mile, is another bluff point, and much like it. In working between this point, and Tree iſland, as you gain near the point, you find the water deeper, than a little to the ſouthward, having 21 fathoms, within 2 or 3 miles of the ſhore. Before you bring the iſland to the weſtward of N. W. you may ſtand off to 36 or 38 fathoms, and after it bears more weſterly, I judge you will ſhoal your water on it. At about 3 leagues from the main you alter your ſoundings, from ſoft and muddy, to hard ſand and gravel, but have no alteration in your depth of water; all the reſt, excepting this ½ mile or mile where we found ſoft ground.

" Along this ſhore are ſeveral iſlands, and the land on the continent is very mountainous; there is a remarkable iſland in about 18° 14′ latitude, it lies near North and South, and about 1½ mile in length; at a diſtance from the ſouthward, it makes like a point, and there appears to be another iſland within it, to the eaſtward, where the land falls into a bay: from the ſouth point of the firſt of theſe iſlands, runs a reef of rocks, to the S. S. W. ſome above water, for about 1 mile and a ½; we paſſed within about 2 or 2½ miles of them, and when abreaſt of them had 20 fathoms water. When to the northward of theſe rocks, you may go near the ſhore to 16 fathoms; being in that depth, and bearing about 1 league, we ſaw a ſmall iſland, called in the draughts FOUL ISLAND (*Negamalé* by the natives), W. by N. ½ N. of us, diſtance about 8 or 9 leagues; we then tacked, with intent to go about 2 l agues wide of it, and ſtood W. by N. with light breezes, about 6 hours, when finding we ſhoaled our water, on hard ſand, to 17 fathoms, came to an anchor, and found a ſoutherly current.

" In the morning ſounded Weſt from the ſhip, very ſoon ſhoaled to 14 fathoms, and, at about 3½ miles from her, got on a reef of coral rock, which ſeemed to lie near North and South, the water very clear; as we paſſed over ſome of them, there did not appear to be

* *Foul Iſland*, by Mr. *Fitchie*.

above

above 3 fathoms, though the leaſt water we had in going over the reef was 7: we judged the lead fell between the rocks, as they were intermixed with many ſandy ſpaces; in leſs than half a cable's length, to the weſtward, had 10 fathoms, and then gradually increaſed to 16 and 17, ſand. When on this reef, the higheſt part of Tree iſland lies S. S. E. diſtance about 4 leagues; and on the main about Weſt, are two high mountains, or more properly, two riſings on the ſame mountain, between which there is a ſmall hill; on the ſhore are two ſmall iſlands (at leaſt they appear at that diſtance as ſuch) making two gaps: the riſing hill, between the two mountains, appears directly over the ſouthernmoſt of the two gaps, when on the reef, and Tree iſland S. S. E. When in 17 fathoms we ſtood away in the boat for the iſland, keeping the ſame depth till we brought the ſhip to bear E. by N. $\frac{1}{4}$ N. then ſtood directly for it, and in no leſs than 13 fathoms, regular ſoundings, we weighed, and went through this channel.

"Foul Iſland bears from Tree iſland N. N. W. $\frac{1}{4}$ W. 8 or 9 leagues, and from the ſouth end of Cheduba N. N. W. $\frac{1}{4}$ W. 13 leagues. When we were out of the channel, we deepened preſently our water to 30 fathoms, mud, the iſland S. S. E. $\frac{1}{4}$ E. In latitude 18° 6′ North, or thereabouts, I judge there is a good channel, as we, the day before, brought the iſland to bear South, about 8 miles diſtance, and had no leſs than 21 fathoms water, when the wind coming from the ſea, we ſtood to the eaſtward. To the northward of this, at about 3 leagues from Foul Iſland, or rather nearer, is a good channel, which we another time went through, with pretty regular ſoundings; the leaſt water was 12$\frac{1}{2}$ fathoms, Foul iſland bearing N. N. W. $\frac{1}{4}$ W. 7 or 8 miles."

## REMARKS FOR THE STRAITS OF CHEDUBA.

By Captain CHARLES NEWLAND.

"COMING up the Coaſt of AVA, bound to the northward, if you are deſirous of going through the Straits of Cheduba you muſt endeavour to make the *Iſle Sale* (Foul Iſland) which lies in the latitude of 18° 20′ North, and about 5 leagues to the ſouthward of Cheduba; being about 3 leagues to the eaſtward of this iſland, you will ſee ſeveral more to the northward of you, the three weſternmoſt of which make the Straits; Cheduba is known by being the moſt weſterly, it is pretty high, and has many lofty hummocks upon it; but on the ſouthernmoſt end is a high bluff-head, which at a diſtance you will take for the ſouthern extreme of it, till you have riſen the low land, appearing like iſlands ſeparate from it; but when you are near you may perceive, from the maſt-head, they join the bluff, and are really a part of Cheduba.

"The next iſland to Cheduba is round and of a moderate height, the upper part appearing black, and the under white; this, which lies almoſt in the middle of the Straits, you leave on the larboard ſide going through: to the eaſtward of that are the iſlands which form

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form the eaſternmoſt part the Straits; they are 4 or 5; though they appear to you, when abreaſt of Iſle Sale, as one. In nearing theſe iſlands, you will perceive a rock inſhore, called the *Commodore*, from its appearing like a ſhip under ſail with a broad pendant flying: you muſt ſteer for this rock, which, when opened on the ſouth part of the above iſlands, forms the ſouthern extremes of the Straits, and you give it a birth, about 12 miles to the eaſtward of you. As you draw near to Cheduba, you will ſee, under the high bluff-land, a ſmall low iſland ſurrounded with rocks, which appears ſo cloſe to Cheduba that you will take it for the beach, though it lies near 4 miles diſtance from it; this is very dangerous, there being a reef extending to the N. E. about $1\frac{1}{2}$ mile, on which the ſea continually breaks, ſo that I would adviſe no one to come within 3 or 4 miles of it, nor even at all, if it be poſſible to keep the eaſtern ſhore on board. From this low iſland innumerable rocks are ſtretching to the ſouthward, as far as the *Iſle Sale*, which, if there be a paſſage between them, muſt be extremely hazardous.

" The *Iſle of White*, which I call the *Round Iſland*, lying in the Straits, is rather more than a third over from Cheduba to the eaſternmoſt iſlands; the channel is to the eaſtward of it, ſtanding rather nearer to the eaſtern iſlands than to it, becauſe of a dangerous reef, running near 2 miles from the north-eaſt part of it. After you are ſhot in ſo far as to bring this iſland to bear S. W. by S. you will ſhoal your water to $\frac{1}{4}$ leſs 5, which may continue till you have brought it aft to South; then you will have conſtantly 5 fathoms till you near the north-eaſt part of Cheduba, of which you muſt alſo be very careful (there being a Sandy Bank, on which the ſea breaks) ſtretching more than a third of the way over to the oppoſite point, for which reaſon you muſt endeavour to ſail within 1 or $1\frac{1}{2}$ miles of the ſaid eaſtern point; it is high bluff-land, and when you firſt enter the Straits, you take it to be the northern extreme of the eaſtern iſlands, but you will find they continue from thence above 4 leagues farther to the N. W. as does alſo the Iſland Cheduba to the N. N. W. When you have rounded the ſaid point, before mentioned, and deepen your water to $6\frac{1}{2}$ or 7 fathoms, you will then be about 2 miles from the eaſtern ſhore, having the northern extreme of Cheduba to bear W. $\frac{3}{4}$ S. and the northern extreme of eaſtern iſlands N. W. $\frac{1}{2}$ N.

" From thence you muſt endeavour to ſteer a mid-channel-courſe between the two points, there being a ledge of rocks extending from each; if you have the two extremes on the bearings before mentioned, you may ſteer N. W. by W. on which courſe you will have $6\frac{1}{2}$ and 7 fathoms, till you have ſailed about 6 miles; then you will ſhoal gradually to $5\frac{1}{2}$, the leaſt water we had, in the *Ahmoody*, when we paſſed between them; and as it was in the night time we cannot determine the diſtance from either ſhore, but judge we were about 2, or $2\frac{1}{2}$ mile from the eaſtern point: you may continue to have $5\frac{1}{2}$ fathoms for $1\frac{1}{2}$ or 2 miles, and then will deepen gradually to what depth you chooſe to run out in. I would by no means haul to the northward of N. W. by W. till I was in 22 fathoms, becauſe the day after we cleared the Straits, having got into that depth, we hauled up N. $\frac{1}{2}$ W. and about 10 in the morning ſaw the TERRIBLES, already mentioned, which are certainly the

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the moſt dangerous rocks upon the coaſt, bearing N. ½ E. we then hauled up North, in order to get a perfect ſight of them, keeping the lead conſtantly going, and coming no nearer than 20 fathoms. At noon we had a very good obſervation, and found the body of them to lie in 19° 28′ North, extending ſeveral miles to the northward and ſouthward; they bore at that time N. E. about 5 miles, our depth of water 20 fathoms, ſand and ſhells. Theſe are the more dangerous, as neither the *Engliſh Pilot*, nor the *New Directory* give any account of them; they lie 6 or 7 leagues to the eaſtward of the iſlands off the Coaſt of ARRACAN, and bear from the Broken iſlands S. S. W. about 7 leagues.

"I cannot pretend to give a true information of all the dangers in the Straits of Cheduba, as that muſt undoubtedly require a particular ſurvey; what I have ſaid is from my own experience in our track through, and I have penned theſe remarks principally to retain them for my own uſe, yet if they will be of the leaſt ſervice to any one, I ſhall be very happy at the aſſiſtance they may give him.

"I muſt obſerve that both Cheduba and the eaſtern iſlands are inhabited.—A boat from the latter, with 5 men, came within hail of us, but we could by no means perſuade them to come aboard, they rather ſeemed to decline any communication with us, deſiring, as we were then at an anchor, we would leave the place. I ſent the pinnace to endeavour to treat with them, but they made their way aſhore.

"As theſe people are therefore not to be truſted I think every veſſel ſhould be on their guard; they have ſeveral boats, which we ſaw, and may, when you are becalmed, or at an anchor, in the night ſurpriſe you with an unwelcome viſit."

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## GENERAL DIRECTIONS FOR SAILING

## FROM PAGODA POINT TO BALLASORE ROADS,

### In the Months of December and January.

IN working out from PAGODA POINT you bring Diamond iſland to bear S. S. ½ E. or S. E. by E. and that will carry you clear of the tail of the ſand, which ſtretches as far to the northward as the northernmoſt red cliff you ſee, but borrow no nearer the tail of the ſand than 6 fathoms—from hence to Cape Negrais come no nearer than 12.

From Cape Negrais to the BUFFALOES keep the ſame depth; and then you may ſtand off to 25 and 30 fathoms till you come up with the BROKEN ISLAND, then you will have ſight of Calventura rocks.

From the Broken iſland to the *Calventuras*, or CALVENTURA ROCKS, keep in 45 and 50 fathoms, which depth you will have cloſe along the ſaid rocks; but you muſt keep a good offing in the night, and frequently uſe the lead and line, as the currents are very deceitful and often ſhifting.

From the Calventura rocks you muſt work up as high as the Iſland CHEDUBA: and it will

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will be neceſſary to ſtand out to 50 fathoms, and into 30, till you come with the BROKEN ISLANDS.

When you get to the northward of theſe iſlands, you may ſtand in, to 15 fathoms, and off to 40, keeping in that depth until you are in the latitude of 20° 15′ North.

Then if you find the wind favourable, you may quit the coaſt, ſteering W. by N. and W. N. W. which courſe will keep you in 45 and 55 fathoms.

If it ſhould be calm, and you find the current ſets you out, you had beſt come to an anchor, and wait till you find the current or wind in your favour; but in caſe you ſhould fall off to W. by S. or W. S. W. it will be neceſſary to put about and ſtand to the northward, taking great care not to loſe ſoundings.

There is a SWATCH, deſcribed before, about 2° off the land, and where there is no ſoundings with 200 fathoms line, which is about 2 or 2½ miles, in ſome places. After you are over that ſwatch you will have ſoundings upon SAGOR SAND from 10 to 16 fathoms, hard ſand, then it is requiſite you ſhould keep from 12 to 20 fathoms. Running along, in that depth you will alter your ſoundings from hard ſand to ſoft ſticky mud, which is the ſwatch between Sagor and the Eaſtern Sea-reef; you will croſs the tail of the EASTERN SEA-REEF, where you will have ſoundings from 10 to 12 fathoms, hard ſand, but no danger, for you find all theſe ſoundings pretty ſmooth. Then from the Eaſtern Sea-reef to the WESTERN SEA-REEF, you will fall in a ſoft channel again, where you are to ſteer W. N. W. and N. W. by W. and that courſe carries you to the ſloops in BALLASORE ROADS. By obſerving your lead, the tail of the Weſtern Sea-reef will be found in 10 or 12 fathoms, thence you fall into 15, 20, or perhaps 22 fathoms, ſoft ground, and theſe are the ſoundings of Ballaſore roads; from 15 to 13 fathoms you will be ſure to ſee the ſloops.

## THE COAST OF PEGU (PEGOO), WITH THE COASTS OF MARTABAN AND TANASSERIM, &c.

THESE coaſts are little known, and cannot be deſcribed with any detail. We have terminated our deſcription of the coaſt of AVA to the eaſtward of Pagoda point, at the north-weſt point of Porean iſland in the entrance of the Ava river, up which the Engliſh had a factory in 1758. This river is alſo called Perſeen and Barſeen river. Six leagues to the S. E. of Porean point lies TIGER'S POINT, which is high land; from this the coaſt extends 20 leagues E. by S. and Eaſt to BRAGU, or BARAGU, or BRAGOO river and point, and then N. by E. above 30 leagues to the entrance of Sirian river; it is a continual low land covered with trees, and interſected with many channels of rivers forming a multitude of iſlands. The ſhallow banks with which it is encompaſſed, extend 2 leagues into the ſea, and off Bragu point, about 3 leagues; you have from 3 to 4½ and 5 fathoms cloſe to them, and 7, 8, or 9 abreaſt of Bragu. Upon the Coaſt of Pegu the perpendicular riſe and fall of the water is from 15 to 21 feet, the tides running from 5 to 7 knots; the flood and the ebb 6 hours each, except at the overflowing ſeaſon, when the ebb runs 8 or 9 hours, and the flood only 2 or 3. Off Porean iſland the riſe is only 9 feet, and in the GULF OF MARTABAN, 15 leagues

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15 leagues to the eaſtward of Sirian river it amounts to 21 and 24 feet, and that almoſt ſuddenly on the banks in the bottom of the gulf. We need not ſay that this gulf is very dangerous, and that ſhips bound to Sirian muſt be very attentive to the tides which ſet into it with great rapidity.

SIRIAN, or SIRIAM RIVER, called alſo the River of Pegu, is only the weſtern branch by which the great river of that name diſcharges itſelf into the ſea; it has a bar at its entrance, with only $2\frac{1}{4}$ fathoms water on it: the eaſtern branch, which is alſo the moſt conſiderable, is called *Sittang River*, and falls into the Gulf of Martaban.

The town of MARTABAN, which belongs to Pegu, is ſituated about 20 leagues to the eaſt of Sirian Bar, on the north ſide of a river whoſe weſternmoſt point is eaſily known by its high land: the Engliſh ſailors call this high land the *Martaban hills*, but the Portugueſe and the French give that name to the *Queckmy mountains*, which are 20 leagues to the ſouthward of theſe, and can be ſeen at a great diſtance.

From Martaban the coaſt runs to the South above 55 leagues to *Tavay River*, and thence always in a ſoutherly direction, above 100 leagues to the iſland of *Junkſelon*. The Coaſt of TANASSERIM is ſuppoſed to begin at Tavay river, and to extend about 20 or 30 leagues ſouthward of MERGUI: it is bordered with a great number of iſlands whoſe deſcription, as far as they are known, will be given hereafter, as well as that of Junkſelon, &c. in the directions for ſailing to and from this coaſt.

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## THE ANDAMAN ISLANDS,

### PREPARIS—THE COCOS—GREAT AND LITTLE ANDAMAN, AND ANDAMAN ARCHIPELAGO.

### NARCONDAM—BARREN ISLAND—BANKS AND DANGERS NEAR THE ANDAMANS.

Extracted chiefly from Captain RITCHIE's Account.

THE Iſland PREPARIS is ſituated between the latitudes 14° 48′ and 14° 52′* North, bearing from Diamond iſland at Negrais S. 35° W. diſtance 69 miles: it greateſt length extends N. N. E. and S. S. W. 4 miles and ſomething more, and it is not more than $\frac{1}{2}$ league broad any where; at its north end lie two ſmall iſlots, called *Cow* and *Calf*, about which there are no breakers, or any ſign of ſhoal water. The eaſt ſide of the iſland is pretty ſteep-to, there being 7 fathoms water within a cable's length of the ſhore: but along the weſt ſide, and at the ſouth end, lies a great ſhelf of rocks extending a long way into the ſea, ſo that the iſland is not approachable on thoſe ſides, many of theſe rocks are above water upon the reef, and one of them makes like a ſail; on the weſt ſide there are alſo two ſmall iſlands.

Preparis is a ridge of moderately high land ſwelling gradually towards the middle from all

* The middle of Preparis is placed in 14° 57′ by ſome other navigators.



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ſides, and covered entirely with wood; it may be ſeen at the diſtance of 8 or 9 leagues in clear weather.—A few paces above the ſea beach there is a pond of fine freſh water very convenient for watering. The only inhabitants of the iſland are rats, ſquirrels, and monkeys.

There are two ledges of rocks which project into the ſea, juſt at this watering pond, and the ſpace between them is a fine ſandy beach, where boats land very conveniently with caſks to water; and the mark to find the watering place is juſt by the beach in that direction.

The Cocos or *Coco Iſlands*, lie 46 miles S. 17° W. from Preparis; there are two of them, the Great and the Little, which, in clear weather, may be deſcried 20 leagues off.

GREAT, or EAST Coco, the northernmoſt, is 4 or 5 miles long, 2 in breadth; and ſituated between 14° 2′ and 14° 8′ latitude North: its land is pretty high and hillocky, and entirely covered with wood. At its north end there are two ſmall iſlands, one called the *Table*, and the other to the weſtward of this, named the *Slipper*, on account of its appearance when it is viewed from the northward. There is likewiſe another ſmall iſland at the ſouth end, joined to it by a rocky reef, which the ſea juſt covers at high water.—You anchor at the eaſt ſide of Great Coco in 18 fathoms water, and oppoſite to a ſmall iſland, called the *Rat*, or rather between it and a ſhoulder upon the large iſland, which forms a little deep bight: a conſiderable number of cocoa-trees grow along the beach, but no where elſe; nor is there any appearance of freſh water in that place; perhaps it might be had by digging pits, as ſome have done, upon theſe iſlands.

The LITTLE, or WEST Coco, or ſouthernmoſt iſland, bears S. 48° W. from the Great Coco, diſtance 8 miles, and is about 2½ miles in length, and ſcarce half a mile broad: the land is moderately high, and covered with trees; there are here too ſome cocoa-nut trees, growing near the ſea, but no where elſe; and monkeys and ſquirrels are numerous. Captain *Morris*, of the *Boſcawen*, anchored in January 1763, about 3 miles off the north-weſt point of Little Coco. From the ſhip to the ſhore he found regular ſoundings decreaſing to 10 fathoms, within a mile of the ſhore. They landed on the weſt ſide of the iſland, in a fine ſandy bay, but found the reſt all rocky; they could find no freſh water. Here are regular tides flowing N. N. E. and S. S. W.

The ANDAMAN ISLANDS comprehend Great and Little Andaman, and the Eaſtern Iſlands, which Mr. *Ritchie* calls *Archipelago of Andaman*.

GREAT ANDAMAN, between 11° 27′ and 13° 33′ latitude North, is about 43 leagues long from North to South, its breadth from 6 to 10 and 11 leagues. Its north end lies about 23 miles S. S. W. from Little Coco.

Since Captain Ritchie's ſurvey, Great Andaman, with the adjacent iſlands, having been minutely explored, chiefly on the eaſtern ſide, we are enabled to give a more complete deſcription of that iſland. We knew only that its north end was encompaſſed with ſeveral iſlots, through which the French ſhip, *Pondicherry*, had the good luck to find, in 1750, in her way to Pegu, a moſt hazardous paſſage.

This north end, tapering into a ſharp point, conſiſts of two headlands, *viz. Cape Thornhill* on the weſt ſide, and N. E. from it about 7 miles *Cape Price*, which is the northernmoſt point

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point of the iſland. Round the former, very near it, are the two iſlots called *Cliff Iſland* and *Reef Iſland*, and 3½ miles North from them lies *Weſt Iſland*; about 6 miles farther to the north-eaſtward you come to *Landfall Iſland*, the largeſt of all the iſlands; it lies 3 miles North of Cape Price, with an iſlot called *Eaſt Iſland* near its eaſtern point, and both are ſurrounded with a reef having only 3 fathoms water on the weſternmoſt extremity.

The channel between the iſlots and the Great Andaman, which has obtained the name of *Pondicherry Paſſage*, is very narrow between Landfall iſland and Cape Price; in the middle of it lies *Cleugh's Reef*, a very dangerous ſhoal, with hard ground between it and Landfall iſland, and overfalls in the channel which divide it from the main iſland. The ſoundings in the weſt entrance of that paſſage are from 10 and 12 to 22, and then 15 fathoms; from 15 to 16 and 17 in the middle part, and from 27 to 36 toward the Eaſt. The tide flows at 5 o'clock at each end of the channel.

About 3 miles Eaſt from Eaſt iſland lie two dangerous ſhoals, the firſt called *Ranger's Ledge*, and the other, which is the outermoſt, *Jackſon's Ledge*; to the ſouth-eaſtward of this about 7 miles, and 9 miles from the eaſt coaſt of Andaman, lies another ſhoal equally dangerous, which is named *Union's Ledge*.

Fifteen or 16 miles South of Cape Price, and in 13° 17′ latitude, lies *Port Cornwallis*, a very good bay and harbour, which extends, with ſeveral creeks and coves, near ſix miles into the land, in a N. W. and S. E. direction, the largeſt breadth being about 3 miles; its entrance, between an iſlot at the north point, and a reef which projects from the ſouth point, is about ¾ mile wide, with 18 fathoms in mid-channel; you find not leſs than 12, 11, and then 10, 8, 7, 6, and 5, the leaſt water, in the harbour; it has ſeveral ſmall iſlands, the moſt remarkable of which is *Chatham Iſland*, about 2 miles long. The time of high water here is 4 o'clock ½ on full and change days.

The whole of the bank round Great Andaman having been carefully ſounded, you ought not from Weſt Iſland go nearer Landfall Iſland than 4 miles, and muſt keep 2 miles at leaſt from its north point. After you have ſteered due Eaſt 9 or 10 miles, you ſhape your courſe to the South, till you are paſſed Union's Ledge. In all the ſpace compriſed between the track indicated and the iſland, the ſoundings being very irregular, dangers are to be feared, eſpecially between Jackſon's and Union's Ledges; but the ſafeſt way to make and range Landfall iſland, during the S. W. Monſoon, and to avoid Ranger's, Jackſon's, and Union Ledges, is to ſtand quite acroſs the bank till out of ſoundings.

Four miles South of the ſouthern point of Port Cornwallis, and very near the ſhore, lie 4 iſlots, called *Ragged Iſlands*, with very good ſoundings from 10 to 13 and 15 fathoms near them, from 25 to 29, at 3 miles diſtance S. S. E. beyond which this part of the coaſt has not been explored.

The ſouth point of Great Andaman lies, as it has been ſaid before, in 11° 27′ latitude: about 10 miles to the northward of it, on the eaſtern coaſt, is a narrow bay and harbour, which in the draught is called *Little Port Cornwallis*; it has 13 fathoms water in the entrance, before which is the iſlot named *Roſs's Iſland*. From thence you have good ſoundings along the coaſt in 33, 45, 30, 48, 25, 22, 13, and 15 fathoms, down to the point, and near



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*Rutland Iſland*, about 10 miles long from North to South, and 6 in breadth at the ſouth end, and which, before the preſent exploration, has always been taken for the ſouthernmoſt point of Great Andaman. A narrow but ſafe channel, ſcarcely $\frac{1}{7}$ of a mile broad at the north point of Rutland iſland, divides the two iſles, with ſoundings from 10 and 12 fathoms, at the weſt entrance, to 16, 19, 16, and 17 all the way.

To the N. N. W. of Rutland Iſland, along the weſt coaſt of Andaman, are many ſmall iſlands ſurrounded with reefs, and known by the name of *Labyrinth Iſlands:* you paſs, in 10 fathoms water, between the two ſouthernmoſt, which are only two rocks, when you ſtand for the channel we have juſt now deſcribed.

About 16 miles from Labyrinth Iſlands lies a pretty level iſland, about 6 miles long, not unlike Diamond Iſland at Negrais, and totally covered with trees; it is called the *Northern Sentinel*, from its poſition, with reſpect to the paſſage, between Great and Little Andaman, conſidered as a gate-way, and this as a ſentry-box: it is ſaid Captain *John Lenox* got ſome freſh water there in 1783. To the ſouthward of it about 10 leagues lies the *Southern Sentinel*, an iſlot not one mile in length.

The ſouth end of Rutland Iſland is ſurrounded with ſeveral iſlands of very ſmall ſize, *viz.* 2 on the weſt ſide called the *Twins*, and thoſe on the ſouth-eaſt which they name the *Five Iſlands*.

From the ſouthern end of Rutland Iſland, 27 miles S. by W. lies the north point of Little Andaman. In this opening, between the three northernmoſt Five Iſlands, and the next to them 2 miles ſouthward, which was called *Paſſage Iſland*, Captain *Duncan* of the *Ganges*, paſſed in his voyage to and return from Manilla, in Auguſt 1759 and January 1760. "The channel," ſays the Captain, "is quite clear; no danger but what is viſible and above water, and the ground all through ſand, with ſmall coral ſtones and ſhells. We made the two ſmall iſlands called by us the *Twins* to lie in latitude 11° 33′ North. Meridian diſtance from Point Palmiras 4° Eaſt; and 4° 52′ Weſt of the ſouth end of Junkſelon. Ships bound to this channel ought to fall in with, and keep the weather ſhore on board, there being a ſtrong current which ſets with the wind in both Monſoons.

The beſt channel, however, ſeems to lie to the ſouthward of Paſſage Iſland, between the iſlands of the *Two Siſters*, 6 miles S. E. by E. from it, and thoſe named the *Two Brothers*, which are about 9 miles north-eaſtward of Little Andaman: this channel is about 12 miles wide, with 25 fathoms, rocky ground, in the middle of it.

About 27 leagues from the north point, or Cape Price, on the eaſt ſide of the Great Andaman, begin the ANDAMAN ARCHIPELAGO or the EASTERN ISLANDS, whoſe inhabitants, who go entirely naked, are perfectly black, with woolly heads like the African Coffres, and features much reſembling thoſe of the Malays; "nothing in the human ſhape, ſays Mr. *Ritchie*, can have a more wild appearance either in perſon or manners; they are very ferocious, and ſaid to be cannibals."

This Andaman Archipelago is ſeparated from Great Andaman by a ſtrait of 6 or 7 leagues in length, and about 3 or 4 leagues broad, except towards the middle, where there is a narrow, only 3 miles wide, in which the leaſt water found was 8 fathoms; whereas you have

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have from 25 to 17 in the north part of the ſtraits, and from 30 to 40 fathoms in the part ſouthward of the Narrows; it affords good ground for anchoring and ſecurity from every wind.

The land which forms the eaſt ſide of this paſſage is ſo broken into iſlands and inlets, that it is almoſt impoſſible to deſcribe it; the whole is more or leſs mountainous, preſenting every where to the eye an impenetrable thicket.

On the weſt ſide of the ſtrait, and for a great way to the ſouthward of it, the body of Andaman is one continued lofty ridge of mountains, every where covered with wood, except where it is too ſteep for any thing to grow; and in ſuch places it is a reddiſh earth, which every ſquall of wind and rain waſhes down more or leſs.

Mr. *Ritchie* named this channel DILIGENT STRAITS, "having reaſon," ſays he, "to believe no ſhip or veſſel was ever in before;" but it ſeems that the Portugueſe were acquainted with it many years ago. See the hydrographical journal of that gentleman, publiſhed by Mr. *Dalrymple*, p. 54.

From the ſouth part of the ſtraits to the ſouth-eaſtmoſt point of Rutland Iſland the diſtance is about 38 miles, the coaſt running S. by W. $\frac{1}{2}$ W. nearly. There is a paſſage between this end and an iſlot to the S. E. about one mile off: here the currents ſet ſtrong to the eaſtward, and cauſe a very great ripling and foaming of the water, which might intimidate a ſtranger; but there is no danger, for you have no ground at 40 fathoms, till you are quite through the narrow, and near a league to the weſtward of it, when the depth is 15 to 20 fathoms, variouſly for 3 or 4 caſts, and then you have regularly 13 fathoms, coarſe white ſand, in rounding the ſouth end of Rutland iſland at a league diſtance.

Little Andaman, called alſo *Chitté Andaman*, lies between the latitude 10° 30′ and 10° 55′ North. It is above 8 leagues long, and about 5 broad; the land is low, and riſes with an eaſy ſwell towards the middle, or rather nearer the ſouth end, and the whole being covered with woods. The weſt and eaſt coaſts are very clear, with good ſoundings; there is a ſmall bay on the weſt ſide, near the north end, wherein you may anchor in 5 fathoms; about 6 miles S. by W. from the ſouth point of the weſt coaſt lies a ſmall rocky patch with 7 and 8 fathoms cloſe to it.

To the weſtward of Great Andaman there is a BANK which is deſcribed as a long ſhoal of coral rock, lying 10 leagues Weſt of the * high mountain on Great Andaman; you have $4\frac{1}{2}$ fathoms on it, and probably leſs. "My chief officer," ſays Captain *William Richardſon*, "ran due Weſt on it for 2 leagues in 6 to $4\frac{1}{2}$ fathoms; he ſuppoſes that to be its breadth, and that it runs lengthways North and South as the iſlands do: I have met with only three people who had ſoundings on it, and no part being above water, it has never been thought of.

About 20 miles E. by N. $\frac{1}{2}$ N. from Little Port Cornwallis, lies a rocky iſlot, in the middle of a bank, 15 or 16 miles broad, and as many in length, with 10 fathoms, the leaſt water, upon it.

* Captain *Ritchie* places the north peak of the Saddle hill upon Andaman, in 13° 10′ north latitude, obſerved when it bore Weſt.

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To the eaſtward of the north-eaſt point of Great Andaman lies NARCONDAM iſland in 13° 25′ latitude North; and, according to Mr. *Ritchie*, about 27 leagues N. 81° E. from the north-eaſt point of Andaman. Narcondam is very ſmall, and very * high; its peak may be ſeen at a vaſt diſtance; on approaching it you perceive a little rock, joining almoſt its ſouth point, and another larger, on the eaſt ſide; it appears to be ſafe all round. This iſland ſerves for a land mark, from which all ſhips paſſing this way generally take a freſh departure.

BARREN ISLAND, ſtill ſmaller than Narcondam, is called likewiſe *Monday Iſland*; and by the Portugueſe *Ilha Alta* (high iſland); it is a volcano which has been ſeen to emit ſmoke, and which lies 20 leagues S. by W. from Narcondam, and about 19 from Andaman. There appears to be ſeveral dangers adjacent to this iſland; and among others a ROCKY BANK ſeen by Captain *Sharrington* in the *Babar* country-ſhip; he had 4 fathoms on it, Barren iſland bearing N. N. W. 5 or 6 leagues.

Twenty miles (not allowing current) to the weſtward of Barren Iſland, in 11° 7′ or 11° 12′ North, according to Captain *William Juſtice* of the *Union*, lies a ROCK, which has been ſeen by many ſhips. According to the report of the officer ſent by the captain, it is a round rock, about 33 yards diameter, and at the diſtance of twice its length he had from 5½ to 6 fathoms; and from 2½ to 3 miles he found regular ſoundings, deepening each way, as he ſtood off, to 25 and 30 fathoms, and then no ground; as he deepened his water he had coral rock intermixed with ſand, and farther out muddy ground. This rock is exceedingly dangerous, being not above 8 feet high, and the ſea breaking over it continually; he tried the current and found it ſet 6 fathoms.

## THE NICOBAR ISLANDS.

### Chiefly from Captain RITCHIE.

THIS cluſter of iſlands, called *Sambelong*, or "the Nine Iſlands," by the Malays, ſtretches from N. N. W. to S. S. E. pretty near 60 leagues, and contains ſeven principal iſlands, with 11 or 12 ſmaller ones. CAR-NICOBAR, the northernmoſt, bears from the ſouth-weſt point of Little Andaman S. 27° E. diſtance 29 leagues, and between the latitudes 9° 7′ and 9° 13′ North. It extends in length North and South 6 miles, and in width about 5. It is a low and level iſland, perhaps not above 6 feet above the ſurface of the ſea, but it is extremely fruitful; its borders produce cocoa-trees, and many other fruit trees without number: the middle of the iſland is only covered with long rich graſs, where multitudes of hogs are bred. You find here plenty of oranges, citrons, lemons, limes, bananas, plantains, yams, and ſweet potatoes; they have likewiſe fowls, pigeons, and catch variety of wild fowl: all their animals are fed with cocoa-nuts, for they have no ſort of grain. This iſland is clear all round, not having a ſingle rock above or under water, and with good ſoundings every where.

* From two obſervations made in 1789 by *M. Black* in the ſhip *Enterprize*, bound to China, the height of this peak appears to be not more than 870 feet.

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From Carnicobar to TERRESSA, the ſecond large iſland, the diſtance is about 50 miles; between them lie two very ſmall iſlands; one called *Batty malve*, which is an entire rock, ſcarce 1½ mile in its greateſt dimenſion, of a wedge-like form, pretty high at the weſt end, and ſloping to theeaſtward; hence it has been named the QUOIN. The other iſland bears the name of CHOWRY; it is low and level, not above 6 feet above the ſurface of the water, except the ſouth-eaſt corner, which is an immenſe rock riſing perpendicular out of the ſea, to a great height, above the top of all the trees in the iſland; it has the appearance of the crown of a hat with the flaps let down; the low land then reſembling the flaps, and the rock the crown of the hat; which has made the Portugueſe give the name of *Sombreiro* (the hat) to this iſland. On the north-eaſt ſide there is a village with about 40 houſes, abreaſt of which you may anchor in 20 or 30 fathoms, ſandy ground.

TERRESSA lies 8 or 9 miles S. W. by S. from Chowry; it is of a circular ſhape, extending N. W. and S. E. and, reckoning the bending, is about 15 miles long; its greateſt breadth is ſomething more than 5 miles at the north-weſt end, but to the ſouth-eaſtward, it is ſcarcely half as much; both ends of Terreſſa are high land, on which account, at a diſtance it appears like two iſlands.

BOMBOCKA, or *Pombock*, an iſland to the eaſtward, famous for its fair women, is ſeparated from the ſouth end of Terreſſa by a channel only 2 miles wide; it is an entire high mountain, riſing ſteep out of the ſea, and partly covered with wood; its ſummit is a ſharp ridge, extending North and South, about half the length of the iſland, and from it, all ſides ſlope regularly to the water's edge.

KATCHULL or *Tillongchool*, lies about 16 miles to the ſouth-eaſtward of Bombocka: it is of a triangular form, each ſide having 9 or 10 miles in length. We are little acquainted with this iſland, which is entirely covered with wood. You may anchor on the north-weſt end of it in 25 fathoms, coarſe ſandy ground, off ſhore about 2 miles.

To the eaſtward of Katchull, between 4 and 5 miles, are the Iſlands of Car-morta and Noncowry, ſeparated only by a narrow channel which makes one of the beſt harbours in the Eaſt Indies, called NONCOWRY HARBOUR: it is of very eaſy acceſs, with a very good bank to anchor on, in caſe it is neceſſary to ſtop a night or a tide, &c. the weſt channel is hazardous to go in, without a good leading wind, as it is narrow, and has eddy tides, but is good to come out; the harbour is ſpacious, and will hold 40 ſail of large ſhips: there is a ſtrong current or tide in the entrances, but none in the bays or bights of the harbour; the weſt channel lies between two high ſteep lands, like a gateway; it is not more than 100 fathoms wide, with 40 fathoms water in it. In the eaſtern entrance you have 5 fathoms the leaſt water, before you come to the Narrows, and then it deepens to 8, 9, and 10, with a fine ſoft bottom. There are many ſhelves of rocks on the ſouth ſide which are ſteep-to, there being 5 or 6 fathoms cloſe to the edge of them, and the water perfectly ſmooth in all weather. The depth of water in this harbour is various from 12 to 30 fathoms, the bottom ſoft and ſtiff ground. It flows here ½ an hour paſt 9 o'clock, on full and change, and the riſe of the water is 8 or 9 feet.

"Ships," ſays Captain *Phineas Hunt*, "can go in and out at all months of the year. At

At the changing of the Monſoons there are frequent tornadoes, which laſt ſeldom above an hour. The Danes have there a ſmall ſettlement, which has been very unhealthy, owing, I think, to their not being in a good ſituation, and their ground not clear; but I imagine, if the trees were cut down and burnt, and the land cleared on an elevated ſituation, it would be healthy. They had vegetables in their gardens; but as there were not above 8 or 10 in the whole colony*, little could be done by them; and I do not underſtand it is as a national ſettlement; only a few Moravians from Tranquebar ſettled there, to convert the natives to chriſtianity."

CAR-MORTA, or *Camorta*, the iſland to the North of the harbour, is an irregular broken land, about 16 miles long from North to South, and of various widths, none above 5 miles. Its north end is pretty flat, but about the harbour it is mountainous, particularly on the weſt ſide, where ſtands the principal village at the foot of a perpendicular ridge.

"Car-morta," ſays again Captain *Hunt*, "is moſtly covered with trees and underwood; the trees are 3 or 4 ſorts of the poon, very fit for maſts and to build houſes. There are ſeveral plains of paſturage 3 or 4 miles round; the ſoil is rich, as ſugar-canes grow without cultivation, and it produces the fineſt yams in India; there are beſides fine flavoured pine-apples, plantains, guavas, &c. Water is got in wells; but in the dry ſeaſon it is not in plenty, owing to the ſmall number of wells ſunk by the natives. I do not know of any river in the iſland. You have there no tigers or dangerous beaſts: but many ſnakes, though very few of them venemous.

NONCOWRY, or *Noncovery*, called alſo *Soury*, which gives name to the harbour, has the form of a triangle whoſe ſides are about 4 miles in length; it affords the ſame fruits and roots, &c. as Car-morta, but is more covered with woods.

Along the eaſt ſide of Car-morta lies the low and level iſland of TRINCUTTY, which is a continued orchard of beetle-nuts and cocoa-nut trees: the paſſage between the iſlands is ſhoal water, except at the ſouth end.

TONLONGAR, or *Tillangchong*, about 8 miles long, is 10 miles to the North of Car-morta; it is a high rugged mountain, reſembling the comb of a cock, and covered with trees; it has no other inhabitants than ſuch as are baniſhed thence from the other iſlands; its peak can be ſeen in clear weather at 12 leagues diſtance. There are many iſlots and rocks at the ſouth end and weſt ſide of Tonlongar: on the eaſt ſide you find no ground, with any length of line, at 10 fathoms from the ſhore. Between the ſouthernmoſt iſlot and the north end of Car-morta, there is a good channel for large ſhips.

To the ſouthward of Noncowry Iſland are the two ſouthernmoſt Nicobars; and theſe have retained among Europeans the appellation of *Sambelong Iſlands*; the northernmoſt is called Little or Northern Sambelong; the other, which is the largeſt of all the iſlands, is named Nicobar, or Great Sambelong; both are leſs known than any of theſe we have been deſcribing.

* The village where the miſſionaries reſide at *Croſs harbour*, (one of the bights) has now a few more ſettlers; they call it *Herman*, and hoist there the Daniſh flag.

Between

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Between Noncowry and Litt Sambelong lies the SOMBREIRO CHANNEL, about 10 leagues wide; in that channel, 9 miles ſouth of Katchull, lies a coral bank, about 2 miles broad with a depth of water from 47 fathoms on the weſt ſide, to 8, 9, 15, and 11 on the eaſt edge, and 60 fathoms cloſe to it: it was diſcovered by Captain *Mackay* in the *Albion*, 1770. *N. B.* About 23 leagues E. N. E. from the eaſt entrance of Sombreiro channel, the French charts lay down a ſhoal, which it is neceſſary to indicate.

*Little Sambelong* is very mountainous and woody all over; it appears ſteep on all ſides, and is ſaid to be very populous. Three ſmall iſlands to the N. N. W. of it extend to about 10 miles into the Sombreiro channel.

NICOBAR, or GREAT SAMBELONG, is 9 or 10 leagues in length, and about 4 broad in the middle; its north part, which is mountainous, can be ſeen 10 or 12 leagues off, and tapers into a point to the ſouthward; it is ſeparated from the other iſland by a channel from 3 to 6 miles wide, which is called ST. GEORGE'S CHANNEL; you have in it very violent currents, with many eddies, a ſure ſign of a rocky uneven bottom.

"This fine ſtrait," ſays M. *D'Après*, "is 6 or 7 leagues long, lying E. N. E. and S. S. W. the largeſt ſhips may go through it without fear, if they keep mid-channel between both iſlands; at each end of this channel there is a ſmall iſlot which you are to leave to the ſouthward, either coming in, or going out: at the north point of the weſtern iſlot, (Condul iſland), there is a rocky ledge which ſtretches half a quarter of a league, and the paſſage between this iſlot and the Great Nicobar is too dangerous to be attempted: therefore you are to paſs to the northward of it, and alſo of the other iſlot (Cabra Iſland), that lies at the eaſtern entrance, on account of a reef which is perceived to the ſouthward, and renders that part hazardous."

All along the weſt coaſt of Nicobar iſland, you have good ſoundings from 18, 22, 17, and 24 fathoms, 2 or 3 miles off ſhore; and then 26, 30, 22, 27, and 33, with an offing of 5 or 6 miles, coarſe ſand, ſhells, and rotten ſtones.

All the Nicobar iſlands, except the Quoin, with a few others of the ſmalleſt, are inhabited, and the natives are a quiet, honeſt, and harmleſs people.

We muſt not terminate this article without taking notice of a *Shoal* or *Bank* which is ſaid to lie 70 miles to the eaſtward of Noncowry in 8° north latitude.

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## THE ACHEEN ISLANDS AND THEIR PASSAGES;

### WITH DIRECTIONS FOR

### SAILING FROM THE COAST OF COROMANDEL TO ACHEEN.

THESE iſlands properly belong to the Iſle of Sumatra, but they are ſo connected by their ſeveral paſſages, with the navigating tracks of which we are now treating, that it is neceſſary to introduce them in this place, as well as the part of Sumatra adjacent to them.



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PULO*, or POOLO RONDO, the northernmoſt of theſe iſlands, is one of the moſt important to navigators. It lies about 20 leagues S. E. ½ E. from the Great Nicobar, in 6° north latitude, and 8 or 9 miles N. W. of Poolo Way, the largeſt of theſe iſles. Its longitude, obſerved by Captain *Huddart*, is 95° 1′ Eaſt of London; other obſervations give 95° 8′; and Mr. *Dalrymple* in his chart of the Indian Ocean, places Poolo Rondo in 94° 50′. It is ſo called by Europeans, on account of its round form; and within ¼ of a league to the ſouthward of it are 7 or 8 great rocks above water.

The time of departing from the Coaſt of Coromandel to go to Acheen is generally limited to the middle of Auguſt, or at the lateſt, the middle of September. When you are got out at ſea, you have the winds from W. S. W. to S. W. of which you muſt take advantage, and make the Iſle of Sumatra in 5° north latitude, that is to ſay, 5 or 6 leagues to the ſouthward of King's Point (called alſo *Cape Acheen* or *Acheen Head)*, which forms the weſt point of Acheen Road. Here you commonly meet with ſoutherly winds, at this time of the year; ſo by this means you will be to the windward of the Surat Paſſage, which, though the narroweſt, is the beſt, becauſe you can anchor in it.

This voyage, if undertaken at the time preſcribed, can be made in 10 days; but if delayed later, the uncertainty of the winds, and the calms, may make it longer.

As to the effect of the currents, it is ſeldom you find them ſetting to the northward, and their direction is oftener found towards the South. Several navigators have been miſtaken, by being too confident of the currents running with the wind; it is ſafer to compute they ſet to the eaſtward; and either way to keep a good look out in time.

If you make the Coaſt of Sumatra in 4° latitude North, you will ſee in land ſeveral high mountains, and a low land beneath, even and very woody, which continues to the ſhore. Four or 5 leagues from ſhore you have 50 fathoms, all the way good anchoring ground, and no danger about the coaſt. In ſailing to the northward in 4° 43′ you perceive the mouth of a river wherein boats may enter; thence the coaſt is bordered with many ſmall iſlands, low and woody, which may be coaſted ſafely; and 1½ league off ſhore you have 26 fathoms, mud.

Oppoſite theſe ſmall iſlands, in 4° 55′ latitude North there is a bank about 1 mile long, and 3 or 4 cables' length broad, on which the *Lapwing*, Captain *Griffin*, anchored in December 1764; the leaſt water was, mark under water, 3 fathoms, and the moſt 7 fathoms: there are 17 fathoms both within and without.

About 5 or 6 leagues to the S. E. of King's point, the low land is equally woody, but of leſs extent: and like that of the high mountains, very uneven and irregular near the ſhore. The ſoundings in this part vary continually, *viz.* ſand mixed with mud,—gravel—and ſometimes rocky; ſo that there is no anchoring here, unleſs in caſe of neceſſity. About a league from the land you have 35 fathoms.

KING'S POINT, in latitude 5° 37′ North, makes the ſouth ſide of the SURAT PASSAGE, which is bounded, on the oppoſite ſide, by the little iſlands called *Poolo Gomez*, *Stony Iſland*,

* *Pulo*, or *Poolo*, an iſland in the Malay tongue.

and

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and *Poolo Chinchin.* The point is not eaſily known from the S. W. becauſe at this bearing it appears ſo contiguous to the Iſlands Gomez, Nancey, and Braſſe, that no opening is perceived between them. In ranging the coaſt, there is, about 2 leagues to the ſouthward of the Surat Paſſage, a bight near one league broad from one point to the other, which you will readily take for a ſtrait; at its ſouth-eaſt point are two rocks above water, on which the ſea breaks, and another again within the bight, like a ſhip at anchor without her maſts. In the bight the land is low, ſtocked with trees, and fine ſand along the ſhore. At the foot of the high mountains towards Acheen there appear three ſmall hillocks. Half a league off the ſouth-eaſt point of this bight you have 17 fathoms, fine ſand; and a little to the northward 16 and 15 fathoms; $\frac{1}{4}$ of a league off the north-weſt point, the ſame depth is found at half a gun-ſhot from the ſhore. Off this place you may perceive King's point, which appears like a great ſteep hill. Poolo Gomez then makes like two paps; its weſtern point is very low, and at the extremity is ſeen a little iſland, from whence breakers extend about $\frac{1}{4}$ a league W. S. W. and about the ſame diſtance W. by S. of Poolo Gomez, is another rock on which the ſea breaks very much: it is dangerous going between theſe two, and in all probability there is a communication from one to the other. To avoid thoſe dangers keep King's point, which is ſafe, cloſe on board, in 12, and 14 fathoms, red ſand; and when you have doubled that point, the opening of the paſſage diſcovers itſelf. Continue on the ſtarboard hand till you are got to the narroweſt part; then keep mid-channel without fear, and you will ſoon be through.

In caſe of meeting with a contrary wind you had beſt anchor under King's point; and wait till the flood has made, which ſets N. E. by E. and the ebb S. W. by W. At about $\frac{1}{4}$ flood, weigh, and lay the ſhip's head to the northward; ſo you will have the tide under your lee bow. Thus by backing and filling, you may not only get through the Surat Paſſage very ſafely, but alſo to the anchoring place.

You ſometimes meet likewiſe with a contrary tide, which runs very ſtrong out of the Bay of Acheen; if you have not wind enough to ſtem it, anchor till it has ſlackened, before you get to the entrance.

"The Surat paſſage," ſays Captain *Thomas Forreſt*, "is bold and ſafe for a ſhip to work through in either Monſoon. In the ſprings the tide runs 5 and 6 knots, but immediately to the ſouthward or northward of this narrow paſs (which being formed by two promontories has no length, and is about 80 fathoms in width) the tide ſlacks. I would adviſe, in working through, againſt the S. W. Monſoon to lay the ſhip's head to the main of Sumatra, with the main top-ſail aback, becauſe the perpendicular rock is ſteep-to, the ſhore of the oppoſite iſland not being ſo bold. In the paſſage and near it the ground is foul.

"Having got through, the tide will favour the navigator paſt Poolo Gomez, between which and Sumatra, is a ſafe channel with good anchoring ground; the tide will alſo favour as far as Siddo Harbour, (7 miles to the ſouthward of King's point) if the ſhip is kept all the way pretty near the ſhore, where is good anchoring. Going into this



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harbour, the Sugar-loaf hill and the *Slipper rock* are remarkable: you may keep close to the slipper rock, and lie very safe in either Monsoon, Here wood and water may be had, and refreshments as at Acheen; bullocks much cheaper. From this with a fresh land-wind, a ship may stretch off, and get down the coast of Sumatra, where she will find the wind West, and N. W."

From the Surat Passage the course is E. by N. 2 leagues to the ANCHORAGE OF ACHEEN; about $\frac{1}{2}$ a league from the Coast of Sumatra, there is a small island surrounded with breakers. You may anchor before the river in what depth you please; as there are always some ships in the road, you have no occasion for more particular directions. Half a league off shore you find 12 fathoms, and 7 about $\frac{1}{4}$ of a league.

The Second Passage to enter Acheen Bay is that called *Sedre* or CEDAR PASSAGE, between Gomez and Stony Island to the South, and POOLO NANCEY to the North. Though the Surat Passage is preferable, this however is less to be feared than some people imagine; there is nothing dangerous but the rocky bank which extends W. S. W. from Poolo Gomez, with the rock bearing W. by S. from the said island, both mentioned above; and another that stretches from Poolo Nancey about mid-channel.

Northward of Poolo Nancey lies POOLO BRASSE, or *Brassa*, to the North of which are 3 or 4 small islots, and off the main island you have soundings 20 fathoms, sandy ground, where any ship may safely anchor out of the currents, and wait a shift of wind. Between Poolo Brasse and POOLO WAY, is the

BENGAL PASSAGE, 4 leagues wide, and preferable to either of the two described, for ships which are not bound to Acheen. The winds that generally blow between S. S. W. and South, do not always permit the sailing thence to the road of Acheen; and as there is no anchoring there, on account of the great depth of water, if a calm should happen you are tossed about by the currents, which set to the north-eastward, and run a risk of not reaching Acheen. Several ships, having been horsed near Poolo Way, where there is no anchorage, were obliged to sail round about, and re-enter, after 15 days hinderance, at the

MALACCA PASSAGE, which is so called because the ships which go from Acheen to Malacca generally pass through it. It is bounded on the N. W. by the south point of Poolo Way, and on the S. E. by that of Sumatra. You find here a little round islot, or rock above water, called *Poolo Bouro*, or *Malora*; but it is steep-to, and the passage safe on all sides; it lies 3 leagues N. E. from Acheen Road.

ACHEEN or *Atcheen* carries on a very considerable trade; ships come either from most parts of the Indies, particularly on account of the gold which they export in great quantity; the hazard of being paid is the only difficulty of this traffick. The town is situate upon a low ground, which continues from the foot of the mountain which is seen in land: *Acheen river* makes several islands through this plain, which is overflowed in the rainy season. The principal entrance of that river has a bar, over which small vessels of about 25 or 30 tons may pass at high water; but at low tide a boat or canoe can scarcely get over it. The

Portuguese

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Portugueſe and Engliſh had each of them formerly a ſettlement at Acheen, which the perverſe behaviour of the inhabitants obliged them to forſake.

The ſea riſes and falls 7 feet in the road, and it is high water at 9 o'clock, on the full and change; but the ſea-breezes and rains make ſuch alterations, that you cannot depend always on this rule. You are ſheltered from the weſterly Monſoon, which is the ſtrongeſt, and blows from April to November; then the eaſtern Monſoon ſetting in brings with it more moderate winds, except uncommonly thoſe from the N. W. which blow very violently, and oblige ſhips to have ſtout ground-tackle to withſtand their fury.

Among the mountains which hereabouts cover the northern parts of Sumatra, there is one very high, that can be ſeen 20 leagues at ſea; it is called the *Queen's Mountain*, or *Queen's Peak*.

Ships bound to Europe, which on their return are to ſtop on the Coaſt of Coromandel, ſhould depart from Acheen by the 20th or 22d of December, in order to arrive on the coaſt in the beginning of January. Having made ſail through the Bengal Paſſage, they ſhape a courſe towards the Great Nicobar, which lies 20 leagues N. W. $\frac{1}{4}$ W. from Poolo Rondo. We have already ſaid that it may be ſeen 10 or 12 leagues at ſea. There is no occaſion to paſs through St. George's Channel; it is ſufficient to go to the ſouthward of it, and when you have paſſed it, keep on the proper courſe for your intended port; it muſt be obſerved to make the land at this ſeaſon to the northward of the port in order to get thither the eaſier and ſooner: you muſt alſo have regard to the currents ſetting to the weſtward, which otherwiſe might occaſion your falling in with the land ſooner than you are aware of.

For ſhips whoſe buſineſs detains them longer at Acheen, and which ſeldom depart ſooner than March or April, the courſe muſt be different. The South and S. S. W. winds which blow then in the Bay of Bengal, and the currents that ſet to the northward, require they ſhould make the land to the ſouthward of the place they are bound to.

## REMARKS ON THE BIGHT OF COR-ANGRIA, TO THE EASTWARD OF ACHEEN.

THE Bight of COR-ANGRIA is called BACK BAY in Captain Baker's Draught of the North Coaſt of Sumatra; the French ſhip *La Paix*, to which we owe the following remarks, anchored there the 22d of October 1767, at half an hour after 6 in the evening; it is $3\frac{1}{2}$ leagues broad from one point to the other, and formed by POINT PEDRO to the Weſt, which terminates in a very gentle ſlope, and is diſtinguiſhed by the great trees with which it is covered, as well as the whole bight from one end to the other; theſe trees reſemble yew-trees in the form of a pyramid. The eaſt point has nothing remarkable; you only diſcover there the mountain called the *Elephant*, which, with the *Queen's Mountain*, ſeems to form two iſlots when both are ſeen at a diſtance from 15 to 20 leagues, S. by E.

The bight is very ſteep, and at 21 fathoms, you are only $\frac{1}{4}$ a league off ſhore; the ground is not ſo ſwampy as that of Acheen; and the beach, which is a white ſand, on which

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which many country boats were lying, induces to believe that the rivers of this bight are of an eaſy acceſs: there is no great ſurf but with the N. N. E. winds.

The weſt part of Point Pedro forms, with the mouth of Poterian river, the bight named by the natives *Gingan*, or *Gingien*, where the anchorage and the holding ground are both good; the ſhip *La Paix* anchored there in 10½ fathoms, and remained all night; the following day at noon ſhe went to anchor on 15½ fathoms in the road of Acheen, compriſed between Poterian river and King's point. From the anchorage The Queen's mountain bore E. 24° S. a tuft of trees at the entrance of Acheen river E. 25° S. The Golden mount 28° from South to Eaſt. The (Weſt) *Elephant Mount*, which is ſituated at the bottom of the road of Acheen, S. W. Point Pedro E. N. E. Gingan river E. 11° N. Poterian river E. 4° S. King's point, on with the middle of Poolo Gomez, W. S. W.—All theſe bearings *by compaſs*.

## INSTRUCTIONS FOR SAILING FROM MADRAS TO PEGU, IN THE LITTLE AND GREAT MONSOON.

IF you ſail in the Little Monſoon, that is, by the 25th of April, it is requiſite you ſhould keep to the ſouthward, becauſe the laſt full or change of the moon in April, or the firſt full or change in May, you have generally blowing weather from that quarter; but if you find the wind to ſtand good at S. W. ſhape your courſe to go through the channel, which is between Great Andaman and Cocos iſlands, keeping as near Andaman as poſſible. As ſoon as you are through ſtand Eaſt or E. by S. if you can, and go within 1 league or 2 of Narcondam iſland; and when you are 12 leagues to the eaſtward of it, your paſſage is ſecure.

If you do not ſail before the middle of May, the Monſoon is then ſet in, and you may keep between the latitudes of 13½ and 14°; do not ſtretch to the northward of 14°, but go through the ſaid channel as above. At this time of the year, if your glaſs be true, and your log well kept, you will make the Andamans when you have run about 10° eaſting. When you are through the channel, ſteer Eaſt or E. by S. and when Narcondam iſland bears South, 2 or 3 leagues, you may ſtand away E. N. E.—N. E. by E. or N. E. till you have made 2½ degrees eaſting from the ſaid iſland. For this run, be cautious to keep the log well, then ſteer North for SIRIAN BAR, and keep a good look out, for if you are 5 leagues to the eaſtward thereof, in clear weather, you will certainly ſee the high land of Martaban; and if you do not perceive it, you may conclude you are not ſo far to the eaſtward of the bar.

Ships that come on the Coaſt of Pegu, in this ſeaſon, ought to be well provided with good anchors and cables, for ſhould you be obliged to ride out, at full or change, the latter end of May, or the beginning of June, you will certainly ride very hard, there being ſhoal water and very ſtrong tides. If, on the ſprings, you chance to meet with dark dirty weather, ride it out in 8½ or 9 fathoms; and when you would deal with the coaſt, do not venture, under 6 fathoms, till you ſee the land, and know whereabouts you are.

If

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If you meet with ſtiff ſoundings, mud or clay, in $6\frac{1}{2}$, $7\frac{1}{2}$, or 8 fathoms, then you may be aſſured you are to the eaſtward of the bar, for the weſtward is all ſoft ooze. Theſe ſtiff ſoundings are the beſt marks in blowing weather, whether you are to the eaſtward or weſtward of the bar; all along which to the weſtward, the tides ſet to the north-eaſtward, or more eaſterly; whereas they ſet N. N. E. and N. by E. all along to the weſtward; if you happen then to fall into theſe latter tides way, you may depend upon it you are to the eaſtward of the bar; therefore come away to the eaſtward with the ebb, as ſoon as you can; in theſe tides way you meet with the ſtiff ſoundings. I never knew any who were exact in running the before mentioned eaſting, but they fell in with the bar very well, not exceeding 4 or 5 miles on either ſide.

If you ſail from Madras in the Great Monſoon, that is in the month of September, when you have made $11\frac{1}{2}$ deg. eaſting, and about the latitude of 13° 40′ you will ſee the land of Andaman. Some have made 13° eaſting, which I believe to be the fault either of the glaſs or the log. After you are through the channel, follow, as near as you can, the directions before given, and take care not to fall to the weſtward of Bragu, or Baragu Point. When once you have anchoring ground, be ſure to keep it (for if you loſe it, you run a great riſk of loſing alſo your paſſage) and get into 7 or 8 fathoms, as you have opportunity; then ſail along ſhore into $6\frac{1}{2}$ or 7 fathoms, keeping your lead going, at leaſt twice a glaſs; and as ſoon as you find your water deepens a fathom, or thereabouts, you are the length of Sirian Bar, where is the deepeſt water along the coaſt.

Keep a good look-out for the marks of the bar, which are 5 or 6 palmira-trees, and aloes, to the weſtward of the river's mouth; but there are ſeveral on the eaſtern ſhore, and to the eaſtward of theſe the trees have ſmooth tops, and look like a wood.

Bring the palmira-trees, on the weſt ſide of the river (called the Weſtern Grove, or the Elephant), N. W. $\frac{1}{2}$ W. and ſtand in N. N. E. and North for the bar; and as ſoon as you have the river's mouth open, ſtand in N. N. W. or more weſterly, as you will find it neceſſary; after you are over the bar, the river is wide enough. The beſt time for going over is at $\frac{1}{2}$ or $\frac{3}{4}$ flood, for then the tide ſets N. N. E. and North, but the firſt of the flood, the tide makes to the eaſtward very ſtrong. If it be clear weather, you may ſee the high land of Martaban, when you are within the bar of Sirian.

About the meridian of the bar, in 9, 10, or 11 fathoms, the water will be very white and thick, and the ſoundings ſoft and oozy; but to the eaſtward of it the water is green, and the ſoundings blue mud, ſomewhat ſtiff.

It is high water on Sirian Bar, at full and change, at a $\frac{1}{4}$ paſt 3 o'clock.



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# GENERAL DIRECTIONS FOR SAILING TO MERGUI,

## WHEN YOU LEAVE THE COAST OF COROMANDEL,

From the Beginning of Auguſt to the Middle of September.

From Monſ. D'APRE'S.

THE winds, which, at this time of the year, generally blow from Weſt to S. S. W. oblige you to direct your courſe to the ſouthernmoſt of the iſlands South of Little Andaman. Getting in time into the latitude of 10° 10′ North, if you paſs this channel (Duncan's Paſſage) in that latitude, you muſt look out ſome iſland, and thence direct your courſe with more certainty towards the eaſt coaſt, endeavouring to make the TORRES ISLANDS, ſituated about 20 leagues S. W. by S. from that of Tanaſſerim.

Though it is very rare, eſpecially at this time of the year, to find a difference to the weſtward; yet it is prudent, when you have not ſeen Little Andaman, to run 30 leagues to the eaſtward of its computed diſtance, before you ſtand to the northward, leſt, by ſome unforeſeen miſtake, you run upon this iſland in the night-time, when you reckon yourſelf paſt it: you may alſo go through Sombreiro Channel: but you will be enough to the windward in paſſing that of 10° 10′.

In croſſing from Little Andaman, or from the Nicobars to the northward of Sombreiro Channel, to the Coaſt of Tanaſſerim, you ſometimes arrive there ſooner than you expect, by means of the currents which run to the N. E. but as you have ſoundings 12 or 14 leagues off theſe iſlands, along the coaſt of Tanaſſerim, it is eaſy to prevent the ſad conſequences that may happen by theſe errors in the night-time.

All theſe iſlands are very high, and may be ſeen, in fine weather, 14 or 15 leagues: that of Tanaſſerim, which you endeavour to make, when in the latitude of 12° 30′ appears, at firſt ſight, in ſeveral hillocks, like iſlands, by reaſon of its unevenneſs; but on approaching it they are ſeen to join. To the northward and ſouthward are ſeveral other iſlands of different ſizes: but the moſt remarkable, and which makes Tanaſſerim eaſily known, is a round little iſland, high and ſteep, called the WESTERN CANISTER, about 2 or 3 leagues to the north-weſtward.

N. E. ¼ E. from this laſt you ſee the iſland CABOSSA, or *Cabozes*, which is of a middling ſize, extending from Eaſt to Weſt; it is the height of thoſe round about it, but not ſo regular as that of Tanaſſerim. The iſland Caboſſa has a little iſlot or rock to the northward of it, which may be eaſily known coming from the ſouthward, as there is no other to the northward, but ſeems to terminate this range of iſlands.

Having got ſight of this laſt, you may paſs it either to the northward or ſouthward, leaving the Weſtern Caniſter on the ſtarboard ſide, and ſtanding to the eaſtward, in ſoundings from 30 to 35 fathoms. There are a great number of iſlaes of different ſizes round about.

When you are between theſe you muſt regard the tides, which flow 7¼ hours, or ¼ hour paſt 7 o'clock, at the full and change of the moon off Caboſſa; but are very irregular, making

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making their way through the different paſſages formed by theſe iſlands: it is therefore neceſſary to anchor while they are not favourable.

As ſoon as you have paſſed Caboſſa, you may perceive, at 8 or 9 leagues diſtance, a ſmall iſland almoſt round, called the LITTLE CANISTER: it is high, ſteep, and covered with trees, and very much like the Weſtern Caniſter above mentioned. The difference between them is, that the north end of the Weſtern Caniſter ſlopes more gradually than the ſouthern one, and forms a ſort of ſnout. You may ſail either to the northward or ſouthward of it, at what diſtance you think proper; for this iſland is very bold, and ſafe all round: then ſteer between the iſland TAVAY and IRON iſland. The breadth of this channel is about 2 leagues, clear of danger: all the inconveniency is, that you cannot anchor there ſafely, on any emergency, having 60 or 80 fathoms, rocky ground. It may be eaſily avoided, either coming in or going out, taking care not to anchor till the tides turn in your favour, according to which way you are going.

From Caboſſa iſland to about $\frac{1}{4}$ of a league to the ſouthward of the Little Caniſter, the depth diminiſhes gradually from 35 to 24 fathoms; but increaſes afterwards in the channel above mentioned. When the ſouth-weſt part of Iron Iſland bears S. E. by E. and the Little Caniſter W. N. W. 2 leagues, you will find 35 fathoms, ſmall gravel mixed with mud; being the laſt convenient anchorage to the weſtward, going through the paſſage between Tavay and Iron iſlands.

About 2 leagues N. $\frac{1}{2}$ W. of the Little Caniſter, lies an iſland of a middling ſize, called the GREAT CANISTER, whoſe land is high and very irregular.

The ſouth part of Tavay iſland is formed by ſeveral little iſlands and rocks, ſteep-to, and ſeparated by very ſmall channels. The north part of Iron iſland, which bears S. $\frac{1}{4}$ E. from this laſt, terminates alſo in a point, with rocks above water. You find at the foot of theſe rocks from 25 to 30 fathoms water. The tides meeting hereabouts occaſion eddies and whirlpools, which have different directions. The beſt courſe is to keep at an equal diſtance from either ſhore.

From hence, LONG ISLAND bears E. by S. extending from North to South, along the edge of a bank of rocks under water, with which the Coaſt of Tanaſſerim, from the mouth of Tavay river to that of Mergui, is encompaſſed. Inſtead of nearing this iſland, you muſt, as ſoon as you have doubled the north point of Iron iſland, ſteer along its eaſt coaſt at about 2 miles diſtance. In this channel you have 40, 25, 20, and 17 fathoms, ſand and mud, as far as the entrance of KING'S ISLAND BAY, lying to the S. S. E. This bay is formed by the eaſtern coaſt of the iſland of this name, and the weſtern coaſt of FIG, or PLANTAIN ISLAND.

One league N. N. E. from that point of KING'S ISLAND, which forms the entrance of the bay, there is a dangerous ſhoal, on which the French ſhip *le Lys* touched in 1724.

Between Iron iſland and the north part of King's iſland, there is a channel, through which you may alſo paſs, which has the ſame defect as the other, having no anchorage, but in very deep water; therefore, prudence ſuggeſts you to avoid it, till the tides favour your



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getting through: ſo that when you come from the iſland Caboſſa, if the tide fails, anchor as near to Iron iſland as convenient, to wait the beginning of the next flood.

From this laſt anchorage, to get into the channel, keep nearer Iron iſland than King's iſland, till you are paſt the iſlands or rocks to the northward of this laſt, the outermoſt iſland being very low, with a dangerous ſhelf; then leave Iron iſland to round that of the King.

This paſſage is longer Eaſt and Weſt, than that to the northward of Iron iſland, whoſe extent is not ſo perceivable, becauſe that part of the iſland terminates in a point; whereas the ſouthernmoſt part is about $\frac{1}{4}$ of a league broad: beſides, you generally have calms to leeward of this iſland, during which you are expoſed to the tides, which do not ſet always alike: ſome ſhips having been driven within a ſtone's throw of Iron iſland, and then back again, to and fro, by theſe eddies; and although the coaſt is very bold, even at this diſtance, yet there are no bad conſequences to be feared: ſo that, upon the whole, the preference ſhould be given to the north channel before mentioned.

## DIRECTIONS FOR COMING INTO, AND GOING OUT OF KING'S ISLAND BAY.

THE going into this bay chiefly depends on the ſituation of the LYS SHOAL, which is a little chain of rocks under water, extending about a cable's length E. S. E. and W. N. W.; its ſummit, conſidered as the only danger, bears N. N. E. from the point on the north-eaſternmoſt ſide of King's iſland, which iſland forms the weſt ſide of the bay: it is $\frac{1}{2}$ a league diſtant from the neareſt land. The ſounding upon the ſhoaleſt part is 19 feet at high water, and only 9 feet at low water; at the ſame time the point on King's iſland and a ſmall iſland were in one; and Panella iſlot was likewiſe in one with the higheſt part of the north-weſt point of Fig iſland.

On the weſt ſide, the northernmoſt of the little iſlands between Iron and King's iſlands was open about the width of a ſhip's ſail from the north point of King's iſland. Sailing from ſhoaleſt part towards the point on King's iſland, you have 6, 7, 10, and 12 fathoms; and to the northward 7, 10, and 15. Again, towards Fig iſland the depth increaſes gradually from 6 to 7, and from 7 to 9 fathoms, rocky ground, for about a cable's length off *Panella*, which is a ſmall iſlot on a bank of ſand; on this iſlot is a cluſter of trees, lying about a gun-ſhot from the north-weſt point of Fig iſland, with which at a diſtance it appears confounded. To the eaſtward, almoſt joining to the iſlot, is another ſandbank; and to the S. W. ſtretches a reef of rocks, part of which only appears at low water.

To enter King's iſland Bay, whether from the northward or the weſtward, you muſt leave the north part of King's iſland a league to the ſouthward, and ſtand to the eaſtward till you have opened the bay, and can ſee two ſmall iſlands at the farther end of it; then you may enter, leaving the Lys ſhoal on the ſtarboard, and Panella on the larboard hand. You may paſs this laſt ſafely, provided care be taken of the reef of rocks abovementioned, which extends to the S. W. toward the bay. This is the more requiſite, as that reef ſeldom breaking, you riſk, by

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by the turn of the tides, being horſed upon the rocks very faſt; nevertheleſs, as the paſſage between them is wide enough, you may very well keep clear of it.

As ſoon as you find you have paſſed the Lys ſhoal, ſteer weſtward, and anchor under King's iſland, oppoſite a bay into which runs a ſtream of excellent water. The marks of this anchorage are, 1ſt, the point of King's iſland (which makes the entrance of the bay) North or N. by W. $\frac{1}{2}$ a league. 2dly, The north-weſt point of Fig iſland E. $\frac{3}{4}$ S. 3dly, Long iſland N. by E. $\frac{1}{2}$ E.

The ſea riſes and falls here 10 feet; and it is high water about $\frac{1}{2}$ paſt 9 o'clock, at the full and change. This iſland is inhabited, as moſt of the others are, and produces plenty of wood fit for ſhip-building; there are likewiſe a great number of tigers and ſnakes.

The bay is not very deep to the ſouthward of the anchorage. There is a little channel, ſeparating King's iſland from Fig iſland, which is only paſſable in country boats.

If by contrary winds, or change of the tides, you are obliged to enter King's iſland Bay, through the channel between the point on King's iſland, and the Lys ſhoal, which is at moſt $\frac{1}{2}$ a league broad, you muſt keep along ſhore, at about $\frac{3}{4}$ or $\frac{1}{2}$ a mile diſtance from it; and take ſpecial care not to open the bay till you are that diſtance from it, becauſe if you approach King's iſland, with the Point on it in one with the ſmall iſland, both mentioned at the beginning, you run direct upon the ſhoal.

To go out of the bay, the beſt track is to keep mid-channel, between the north-eaſt point of King's iſland and Panella, without borrowing from the Weſt, till you have paſſed the ſhoal, which you may be aſſured of when you have opened the ſecond iſlot or rock between King's iſland and Iron iſland.

If you are obliged to go out by the Little Paſſage, you muſt keep along King's iſland, rounding the point which forms the bay, at about $\frac{1}{2}$ a mile diſtance.

## DIRECTIONS FOR SAILING TO AND FROM MERGUI—JUNKSELON, &c.

By M. D'APRÈS.

AT MERGUI, or *Merghi*, which is ſituated on the principal mouth of Tanaſſerim river, you meet with all neceſſary refreſhments, except oxen, which the inhabitants dare not ſell, ſince the metempſychoſis, or the opinion of the tranſmigration of ſouls, has been introduced among them, and made a law of the ſtate. Although idolatry is the eſtabliſhed religion, the Chriſtians obtain permiſſion to profeſs theirs publicly, and thoſe of the Roman perſuaſion have a church ſupplied by a prieſt of the foreign miſſions, under the title of apoſtolic vicar. There are alſo many Mahometans who are the principal traders, and have ſeveral ſhips which they ſend to different parts of India; the chief trade conſiſts in elephants' teeth, tutenague, and rice.

The French had a ſettlement in this port which has been abandoned many years ago.

When you are off King's iſland bay, and would anchor before Mergui river, in 6$\frac{1}{2}$ fathoms at low water, you muſt ſhape your courſe to ſail about a league clear of the north-eaſt point of Plantain iſland; and, having paſſed it, if you would keep mid-channel, in ſailing towards the iſland Madramacan, which you will ſee to the S. S. E. you muſt mind to keep the Little



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Caniſter open with the ſouth point of Iron iſland and almoſt ſhut in by the north part of Plantain iſland. You find the bottom, mud, in 15, 13, 12, 9, and 8 fathoms. The beſt anchorage for large ſhips, is in 9 fathoms at high water, and 6½ at low tide. The bearings for this place are, 1ſt, The north point of Plantain iſland in one with the ſouth part of the Little Caniſter; and the ſouth point of Iron iſland N. W. open about 10° from the Little Caniſter. 2dly, The northernmoſt part of Madramacan iſland, (which makes the ſtarboard ſide, going into the river of Mergui) S. 3° E. 1¼ league. 3dly, The larboard point of Mergui river S. by E. 2 leagues. The tide flows here almoſt North and South; that is, it is high water at ¼ an hour after 11 or 12 o'clock at noon, on the full and change days, when the water riſes 15 feet.

It is reckoned about 2 leagues from this road to Mergui; middling veſſels can go up the river, taking the pilots of the place to paſs the bar, and anchor before the town in 5 fathoms water.

When you ſail from the road without the bar, you muſt follow the ſame inſtructions as thoſe given to ſail thither; that is to ſay, to ſteer with the Little Caniſter juſt open from the north point of Plantain Iſland, then coaſt this latter at ¾ of a league diſtance, and thence ſail towards Iron iſland, keeping the Little Caniſter ſomewhat ſeparate from its ſouth point: this will bring you ſafe, till you are oppoſite King's iſland Bay, from whence you may go out, either to the northward or ſouthward of Iron iſland, as ſhall be moſt convenient.

All that has been hitherto ſaid, ſuppoſes a leading gale; but when it is contrary, whether ſailing in or out, or to make advantage of the tides you are obliged to anchor, you muſt have new marks, to proportion the courſes to the different breadths of the channel, in order to avoid the rocks on both ſides, as follows:

From athwart the bay of King's iſland, as far as the little iſland about half-way from thence to Mergui, you may ſtand to the northward, till you ſee the ſouth point of Iron iſland in one with the middle of the Little Caniſter, and to the ſouthward till within a quarter of a league from Plantain, or Fig iſland, taking care not to be entangled among the iſlands.

When you have paſſed the little iſland above mentioned, between it and Madramacan, you may ſtand to the northward, till the ſouth part of Iron iſland adjoins to the Little Caniſter; but the moſt certain mark is to leave a ſmall ſpace between them: without this caution, you inevitably run foul of the banks off the coaſt of Tanaſſerim, as it happened to the ſhip *le Lys*, which narrowly eſcaped being loſt here in 1724.

In ſtanding to the ſouthward, take care to put about before the north point of Fig iſland is in one with the ſouth point of Iron iſland, leaving between them, at leaſt, a ſhip's breadth, in order to avoid a bank, which projects out on this ſide the iſland Madramacan.

The beſt advice that navigators can take, who ſail in the N. E. Monſoon, or the middle of September, from Pondicherry, or Madras to Mergui, is to paſs the channels to the northward of the Andaman iſlands, rather than the ſouthern ones. The example of ſome ſhips, ſucceeding by the latter, ought in no wiſe to be always depended upon; for by ſo doing you expoſe yourſelf, if the paſſage is a little long, to the N. E. winds, which will prevent your getting to windward of Mergui. Several ſhips have found themſelves in this plight, and having, in vain

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vain, ſtrove againſt the winds and currents, have been obliged to winter at Junkſelon. To avoid the like inconveniency, ſhape your courſe ſo as to go between the Cocos iſlands and the north point of Great Andaman, or between the former and Preparis iſland.

When you are between theſe iſlands, you may deſcry Narcondam, and, if the winds are weſterly, ſafely ſteer for Carboſſa iſland.

From Narcondam iſland to that of Caboſſa, the weſternmoſt of the iſlands of Mergui, the courſe is E. by S. diſtance 67 leagues. As ſoon as you have loſt ſight of the former, you get ſoundings on the coaſt of Tanaſſerim, in 60 fathoms; and when you have made the iſland Caboſſa, you may conform yourſelf to the foregoing directions for ſailing to Mergui.

When you are within ſight of the Cocos, Andaman, or Preparis iſlands, if the winds blow northerly, the ſureſt way not to miſs Mergui, is to make the Mossos or Moscos ISLANDS in 13° 47′ latitude; they may be ſeen 10 or 12 leagues at ſea. The ſouthernmoſt bears W. N. W. of Tavay point, which forms the weſt ſide of the river ſo called. From this point, the coaſt, which extends North, as far as 16° 30′ is bordered with iſlands pretty clear of danger, and where, it is ſaid, you find convenient places for anchoring. The ſouthernmoſt are thoſe of Moſſos abovementioned.

S. by E. of theſe iſlands, in 13° 6′ lies the north point of TAVAY ISLAND, between which and the main, there is an exceeding fine channel, through which you may ſail to go to Mergui. It is ſurrounded on the eaſt ſide by a bank, whoſe edge lies North and South, encompaſſing all this part of the Coaſt of Tanaſſerim, as far as the river Calwan, or Goulpia, near Mergui.

When you have brought the Moſcos iſlands to bear North, and are deſirous of paſſing this channel, ſteer S. by E. in ſoundings of mud, and unequal depth, as 35, 30, 25, 20, and 15 fathoms, then 35 and 25, to within $1\frac{1}{4}$ league of the north point of Tavay iſland; it is beſt to keep nearer the eaſt coaſt of this iſland than the bank above mentioned, becauſe there is leſs water about it. On the ſide of Tavay iſland are 4 little iſles, which you may coaſt, leaving them to the ſtarboard. You have from 30 to 25 fathoms between the north point of Tavay iſland and theſe rocks; but this depth decreaſes after they are paſſed. The tides flow here S. E. and N. W. or at 9 o'clock: the ſea riſes and falls 15 feet.

The ſouth part of Tavay conſiſts of a number of iſlands, ſeparated by ſmall channels or arms of the ſea, which are imperceptible in coming from the northward; ſo that it appears contiguous and united. On the eaſt ſide is the little round iſland called the Caniſter; it lies on the bank, and points out its edge on that ſide, as Long iſland does about 2 leagues to the ſouthward.

Off this latter you may ſee King's iſland Bay to the ſouthward, towards which you muſt ſail, conforming to the foregoing directions, whether you will go into it, or anchor before Mergui river.

In coming from the northward, you ſail to the weſtward of Tavay iſland, between ſeveral great ſteep rocks ſituate along this coaſt, and the iſland called the Great Caniſter; from hence

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hence you direct your course to go between the north point of Iron island, and the south part of Tavay, as before directed.

If you pass the N. E. Monsoon at Mergui, on account of its being too early for the Coast of Coromandel, your departure should be made about the 15th or 20th of December, in order to arrive there about the beginning of January, when that coast is safe.

If you sail whilst the N. E. Monsoon is in its height, direct your course from Caboſſa island, to pass between the islands Preparis and Cocos, or between these last and the north part of Great Andaman; thence you may sail towards the Coast of Coromandel, taking care always to make the land to the northward of the place you are bound to. This precaution is the more necessary, because, if you fall in to the southward, you will find it difficult beating up against winds and currents, which are then contrary.

It sometimes happens, that the ships trading to Mergui are not always ready to sail in January; therefore, if necessity obliges them to stay till the middle of February, it will be best going through the channel to the southward of Little Andaman, making advantage of the southerly winds, which at this time blow out in the Bay of Bengal, more than the northerly ones.

The whole Coast of Tanasserim, from Mergui, as far as latitude 10° 50′ North, is bordered with a number of islands of different sizes, which form several channels, that are only passable for the small country-ships. And 6 or 7 leagues to the southward of Mergui is another mouth of Tanasserim river, from whence to the southward the coast is encompassed with a bank, containing also many isles and islots, between which the little country-vessels go to Bangry and Junkselon. The largest and most considerable of these islands is called *Omell*, which extends 9 leagues from North to South, its north-east part nearly adjoining to the above mentioned bank.

Beyond Omell island, they say the coast is navigable, even for large ships, as far as Junkselon, provided care be taken of a bank, situate between the continent and the bordering islands. Although this bank is 3 leagues distance from the former, and thereby affords a good passage between them, it seems better to sail without all, where every danger is avoided.

The middle of JUNKSELON island lies in latitude about 8° 10′ North; its shape is irregular, extending from North to South about 18 leagues, and its greatest breadth about 5. On the east side of it are very good harbours which you may safely put into; provisions and refreshments being very plentiful, and the inhabitants sociable.

The principal road and harbour is about 8 leagues from the southernmost point of the island, which lies in 7° 45′ north latitude, and before the mouth of the small river on which stands the town of *Turuva* or *Junkselon*; its opening from North to South is about 7 miles; you anchor behind the 2 small islands at the entrance in 4 and $4\frac{1}{2}$ fathoms, with the following bearings, *viz.* *Little Lallon*, the northernmost of these islands, E. $\frac{1}{2}$ S. 2 miles; the mouth of the river, W. $\frac{1}{2}$ N. 6 miles; and the East point of *Poolo Coco*, on the south part of the harbour S. $\frac{1}{2}$ E. $4\frac{1}{2}$ miles. The South entrance is about $1\frac{1}{2}$ mile wide, with $5\frac{1}{2}$ fathoms the least water, between Great or South Lallon, and a small islot called the *Cap and Feather*

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*Feather*, $1\frac{1}{4}$ mile East of the eastern point of Poolo Coco. The flood runs there N. W. and the ebb S. E. beyond the two islands, in the north entrance, the flood runs to the West, and the ebb to the East.—*N. B.* To the north-eastward of the anchorage is the watering-place, and to the south-westward of it, East of Poolo Coco, are the tin mines of *Sapan*.

Patrick Rowe

## THE STRAITS OF MALACCA, OR MALACK.

### INSTRUCTIONS FOR SAILING TO THE STRAITS OF MALACCA, FROM THE WESTWARD, IN EITHER MONSOON.

Chiefly from M. D'APRÈS.

QUEDA, SALANGORE, &c.

IF you are bound to these straits, in the westerly Monsoon, when the winds, throughout the Bay of Bengal, blow from the southward, and the currents set to the northward, the best course you can take, whether from the Coast of Coromandel, or from Dondra head, in the isle of Ceylon, is to make the islands of Acheen; keeping, as much as possible, in 5° 30′ or 40′ north latitude when you intend to put in at Acheen. But otherwise you must pass by the little islands to the northward of POOLO BRASSE, and continue your course through the channel, between the north point of POOLO WAY, and the rocks $\frac{1}{4}$ of a league to the southward of POOLO RONDO.

Having doubled Poolo Way you proceed towards that part of the Coast of Sumatra, between POINT PEDRO and DIAMOND POINT. During this season it is not common to find settled weather, so as to make a direct course. The wind hereabouts is very variable, and frequently blows from S. S. E. to E. S. E. in violent squalls, which, by withstanding their fury, would drive you ashore, especially in a large ship. You ought to be greatly on your guard through these whole straits, and anchor in time, to avoid being driven off the coast, and if it should happen, so as to be able to recover it easily. Sometimes also it is necessary, to avoid particular danger, to keep off the coast when the wind blows upon it.

The passage from the Coast of Coromandel, to the Straits of Malacca, in the easterly Monsoon, is liable to great difficulties, especially from Madras, or other places more to the southward; because the winds throughout the whole Bay of Bengal, then blowing from N. N. E. to E. N. E. and the currents running to the southward, this contrariety affords no hopes of success. But to those who sail from Masulipatam, or any other part of that coast more to the northward, or from Bengal, the following directions are particularly adapted; they may likewise be useful to ships that are bound to the straits from Dondra head, or Madras, about the end of the western Monsoon; the calms and shuffling winds must

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muſt at this time retard their arrival on the eaſt coaſt of the bay, which they cannot reach before the ſetting of the eaſterly Monſoon; if they conform to the following inſtructions, they will ſhorten their paſſage, and render it more ſafe.

Their track from the ſhoals off the mouth of the Ganges, is to make the weſtern coaſt of Great Negrais, and if, by any unforeſeen error in their reckoning, they ſhould fall with the land to the northward, they muſt take great care of the Buffaloes. When they are within ſight of Negrais iſland, it will be neceſſary to keep cloſe along the coaſt, to luff up to Pagoda point, and then bear away ſo as to paſs to the ſouthward of Diamond iſland, and avoid the Drowned iſland; as it has been ſaid in the deſcription heretofore given of this part.

To make the moſt advantage of the wind, and ſhun the effect of the currents, which ſet to the weſtward, on leaving Diamond iſland endeavour to make the iſlands Caboſſa, Tanaſſerim, or thoſe of TORRES, which are the weſternmoſt of the Mergui Archipelago. Theſe iſlands are very high, and may be ſeen far off at ſea; beſides by the ſoundings about them, you may form a judgment of their diſtance.

From theſe iſlands, ſteer S. by E. to go clear of thoſe along the ſouth part of the Coaſt of Tanaſſerim; they are clear and without danger, or at leaſt any that is viſible.

In 8° 30′ north latitude and 13 or 14 leagues weſtward of Junkſelon, lie the iſlands of SEYOR which may be ſeen 6 or 7 leagues off: you leave them on the larboard, and thence ſteer S. E. to make the POOLO BOUTON, two very mountainous iſlands, which may be ſeen at 12 or 13 leagues diſtance; they are ſurrounded with ſeveral iſlots, and lie 26 or 27 leagues S. S. E. from the ſouth point of Junkſelon, in the latitude 6° 30′ North. The Poolo Bouton are not the only iſlands to be ſeen, all the Coaſt of Queda being encompaſſed with ſeveral others of different ſizes, and very high. Thoſe of Trocton, Loucava, and Ladda, are the moſt conſiderable, and to the eaſtward of this laſt lies the port of Queda, where they trade for tutenague and elephants' teeth.

From Poolo Bouton to POOLO PERA, the courſe S. W. by S. 19 leagues. This laſt, which lies in 5° 41′ latitude North, is a high round iſland, ſteep-to, covered with trees, and about 4 or 5 miles in circumference; it is clear all round, and may be approached with ſafety: you have not leſs than 30 and 40 fathoms, within half a mile from it. Its ſituation, almoſt in the middle of the entrance of the Straits of Malacca (being by itſelf, and out of ſight of the coaſt, or the adjacent iſlands) makes it eaſily known; and it becomes a mark to the ſhips that come in, or go out of theſe ſtraits, the more ſo as it can be deſcried 7 or 8 leagues from the deck.

Should you be bound to the Road of QUEDA, you ſtand away ſouth-eaſtward 5 or 6 leagues, and get a ſight of *Poolo-Ladda*, a very high iſland; to the South of Poolo LOUCAVA, another high and rugged iſland; which you leave on the north ſide, ſteering toward an iſlot called *Poolo Rat*, diſtant from it 3½ leagues to the ſouthward: then you ſteer toward two other ſmall iſlands or rocks, called *Pyers*, about 4 leagues diſtant N. by E. from them, and near the ſame diſtance W. by S. from Queda river; ranging them along to the North or the South, you come to anchor in 5½ or 6 fathoms, ooze,

one

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one league from the river's entrance; which is then bearing E. by N. northerly, and a huge mountain on the north ſide, called the *Elephant* N. E. 2 or 3° N, the principal of the Pyers W. by S. 4° W. *Poolo Biddan* S. S. E. Prince of Wales's Iſland, South; and the white fort at the entrance of Queda river E. N. E. 2° E. It is high water there at 10 o'clock on full and change days, and it riſes 6 feet.

Having had ſight of Poolo Pera, ſhips not bound to Queda, and going to *Poolo Penang*, which lies about 27 leagues S. E. nearly, from Poolo Bouton, muſt ſhape their courſe accordingly.

From Poolo Penang S. S. E. 20 leagues, lies Poolo Dinding; thoſe who ſail from one to the other, with a fair wind, ſhould keep in 20 or 25 fathoms; but if you be obliged to turn it, take care not to come under 10 fathoms, mud.

Poolo Dinding, has above 2 leagues from North to South; its land is high, and riſes in 4 or 5 hills. The Dutch had there a fort on the eaſt ſide, near which is good anchorage in 6 and 7 fathoms; and over againſt the iſland, on the Malay ſhore, is Perach harbour, a long narrow bay with 6, 7, and 8 fathoms water. A ſmaller iſland lies at the ſouth point of Poolo Dinding, which is called *Little Dinding*.

Before you loſe ſight of Poolo Penang, you deſcry the tops of ſome hills, on the Malay ſhore, to the S. E. which are ſometimes miſtaken for Poolo Dinding, and have from that appearance been named *Falſe Dinding*; but you ſoon after diſtinguiſh the iſland, whoſe mountainous tops make at firſt like ſeveral detached iſlands.

To the ſouthward of Little Dinding are The Sambilans (iſlands ſo called from the Malay word which ſignifies *Nine*): they extend $3\frac{1}{2}$ leagues from N. E. by N. to S. W. by S. their land is high, and forms ſeveral hills, which appear contiguous.

To the weſtward of the Sambilans, at about 7 leagues diſtance, and about 25 from Poolo Pinang, is a little ſugar-loaf iſland, covered with trees, with deep water all round, and called Poolo Jarra, in latitude 3° 58′, and which may be ſeen 7 or 8 leagues off; you paſs between it and the Sambilans, in 25, 28, 30, 38, and 42 fathoms, mud, and the channel very ſafe.

Ships who are bound to Salangore muſt range along the Sambilans nearer than Poolo Jarra, and being 3 leagues to the ſouthward of the former, they will ſteer E. S. E. to approach the Malay ſhore, along which they may coaſt in 7 fathoms water at $1\frac{1}{2}$ league diſtance as far as Tanjong Awat, or Caran, a low point which you double in 6 fathoms, ooze, 4 or 5 miles from the entrance of the river that is to bear E. by N. Tanjong Awat will then bear N. W. and two ſmall iſlots called *Mudancoos Iſlands*, on the edge of the bank in the offing S. by E. $2\frac{1}{2}$ or 3 leagues diſtant.

It is high water in the road of Salangore at 5 o'clock on full and change days.

If you weigh from Salangore to go to Malacca, you muſt ſteer, in ſailing from the road, E. by N. to double the bank in the offing, from whence you ſail to the S. S. W. in ſight of the Arroas.

When you go to Malacca, without ſtopping at Salangore, being in mid-channel between the Sambilans and Poolo Jarra, you are to ſteer S. by E. eaſterly, to get ſight of the



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Arroas, which lie S. S. E. about 26 leagues from the latter. In coming from Poolo Jarra to the Arroas the depths are very unequal, you find them alternately from 35 to 40, 48, 42, and ſometimes 50 fathoms; when you are ſailing about the Arroas, if towards the Eaſt you ſhould find yourſelf in 12 or 14 fathoms, which are found on the edge of the bank, you muſt tack about immediately. See hereafter the inſtructions for ſailing along the eaſtern coaſt of Sumatra.

Ships who ſail from Maſulipatam, or any other place on the Coaſts of Golconda or Oriſſa, in the months of January or February, have no occaſion to make Negrais; it is then ſufficient to croſs over to the eaſtern coaſt, between Preparis and Cocos iſlands, or between theſe laſt and the north point of Great Andaman. From leaving theſe iſlands, they muſt ſhape a courſe to get ſight of Poolo Bouton or Poolo Pera, and follow the preceding directions.

As for thoſe who ſail from Dondra head, or Madras, to the ſtraits of Malacca, about the end of the weſtern Monſoon, they may make Little Andaman, going through the channel on the ſouth ſide thereof, or that of Sombreiro, if they cannot reach the former; thence they ſail towards the Coaſt of Queda, to fall in with Poolo Bouton, or Poolo Pera as above.

Many reaſons, obſerves M. *D'Après*, render the eaſtern coaſt of the Straits of Malacca preferable for navigation to the weſtern coaſt; ſuch as the ſituation of ſeveral places convenient for trade, the more regular courſe of the tides, chiefly a leſs ſteep bottom, and conſequently better for anchoring, than on the Sumatra ſide. He remarks alſo, that in the whole extent of the Straits of Malacca, as far as the Straits of Sincapore, the ebb which ſets to the N. W. is much more rapid, and of a longer duration than the flood that runs towards the S. E. This is the cauſe that at all times the ſtraits are ſooner paſſed in coming from the S. E. than from the N. W. even with the N. W. Monſoon. Therefore navigators ought to be attentive to all the circumſtances which are favourable to their voyage; they muſt anchor, in caſe of a calm, as ſoon as they perceive the tide is againſt them; they are to avail themſelves of every breeze, every ſquall, by the help of which they may ſtem the tide; or they muſt let their ſhip be carried by the current when they ſee it ſetting through the fair channel, and no danger in the way.

The ſame obſervation in favour of the Malay coaſt, or eaſtern coaſt of the Straits of Sumatra, has been made by Mr. *Nichelſon*. "It has been found by experience," ſays this navigator, "that paſſages have generally been more expeditiouſly made on the Malay coaſt, which is leſs ſubject to calms, and where you have little or no current, but rather a tide which is alternately in your favour; where alſo you may anchor when the wind or tide is againſt you, and keep what you have got. Mr. *Nichelſon* went through the Sombreiro channel into the ſtraits; but he adviſes going to the ſouthward of the Nicobar Iſlands, as the ſhorter and beſt cut."

To the general inſtructions given in the foregoing article, it will not appear unneceſſary to add the following particular ones, *viz.*

INSTRUCTIONS

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## 1° INSTRUCTIONS FOR SAILING INTO SALANGORE ROAD, COLONG STRAITS, &c.

By the Commander of the Snow *Little Nancy*, Country-ſhip, 1785.

TO run in for SALANGORE, and the Straits of COLONG, called alſo COOLANG and COLLAM, after you have rounded the Sambilans, ſteer away to the eaſtward, E. S. E. or E. by S. and riſe the low land, coming no nearer than 8 or 9 fathoms, but do not riſe the beach from the deck. As you loſe ſight of the Sambilans, you may diſcover the hill of Salangore, or *Falſe Parcelar*; ſteer in for it, keeping the above depth, you will ſoon after make the True Hill, which appears like a grove of trees; when you come nearer you cannot miſtake it, as it is the only hill near the water ſide. In obſerving theſe directions, you will not meet with the ſhoal of broken ſhells, that lies to the N. W. of Salangore, and thoſe which follow will enable you better to avoid it.

When you can juſt diſcern Salangore Hill from the deck bearing S. E. by E. or S. E. by E. $\frac{1}{2}$ E. you will have then 10 or 11 fathoms, green ooze, with ſmall broken oyſter-ſhells, at 5 or 6 miles from the neareſt ſhore. The courſe along ſhore is about S. S. E. 14 or 15 miles. The ſoundings on the ſhoal are from 6 to $3\frac{1}{2}$, 5, 4 and $6\frac{1}{2}$ fathoms, with overfalls of 1, 2, 3 fathoms at a caſt; as you deepen, you will have ſoft ground, and the contrary as you are ſhoaling. When you have ſailed the above mentioned diſtance, allowing for the tides, Parcelar true hill will be ſeen from the deck bearing E. S. E. $\frac{1}{2}$ E. diſtance from the neareſt ſhore 7 or 8 miles, in 14 or 15 fathoms, ſoft ground.

You may make uſe likewiſe of the following inſtructions to go without this ſhoal. When you ſee the Falſe Hill bearing S. E. by E. or S. E. by E. $\frac{1}{2}$ E. from the deck, ſteer off ſhore to the ſouthward, until you loſe ſight of the white ſandy beach from the taffarel; then ſteer to the S. E. along ſhore, taking care not to raiſe the white beach, and that will carry you clear without the ſhoal, in ſoundings not leſs than 8 or 9 fathoms. When you have run the above mentioned diſtance to the S. S. Eaſtward, you may then with ſafety raiſe the beach, or borrow on the ſhore; but come not under 8 or 7 fathoms, ſoft ground, as it ſhoals very faſt from that depth until you are paſt Tanjong Awat.

But to reſume our inſtructions for ſailing into Salangore. After you have ſeen the low land beyond Tanjong Awat, you may be guided by the lead, giving that point a birth of a mile, or a mile and a half, to avoid the ſhoal which ſtretches from it. To run into Salangore Road, you keep the hill a little open to the ſouthward, and anchor a little to the northward of it, in 4 or $3\frac{1}{2}$ fathoms, ſoft mud, as there is a ſhoal to the ſouthward projecting a mile and a half.

Going to the Straits of Colong, ſteer for Mudancoos iſlands, and to the eaſtward of them you will then deſcry the eaſt entrance, called alſo the north mouth, of the ſtraits. The Mudancoos iſlands are bold-to, but the iſlands are the reverſe: off the ſouthern or outermoſt Bottle iſland, lies a dangerous Rock, bearing from it S. W. $\frac{1}{2}$ S. a mile diſtance, and with 5 fathoms cloſe to it. On the S. W. of the channel there is a ſand bank, but on the other it is mud. When you are paſt the above iſlands,



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approach nearer the ſand bank than when you leave hard ſoundings; on the oppoſite part ſtand on at pleaſure.

A little to the northward of the north entrance of the ſtraits, lies a ſhoal, to avoid which, as well as to remain in the beſt channel, you are to keep the Middle Bottle Iſland in one with Salangore Hill, obſerving not to open the hill to the eaſtward: another leading mark is to keep Parcelar Hill on the weſt point about its own breadth: after paſſing this ſhoal you may be guided by the lead on this ſide, keeping in from 5 to 9 fathoms. There is alſo another ſhoal in a line of direction from Mudancoos iſlands to the weſt point, but of no great extent.

In working up this Firſt Reach we met with no danger, having good water from ſide to ſide, which at the upper end of the reach is very deep with irregular ſoundings from 12 to 22 fathoms. The reach that is on the larboard hand is the river Colong or Collam.

The Second is Bar Reach, which is clear while abreaſt of a creek on the larboard ſide, oppoſite to which is the ſhoaleſt part of the Bar: before you come up to this creek, you meet with another, which it is neceſſary to avoid, as there is an indraught. It will be beſt to anchor about a cable's length, in 6 fathoms, before you croſs the bar, as it ſhifts very much, and of courſe it is requiſite to ſound; on our ſounding we found 3 fathoms at low water the greateſt depth, which is a little more than a third over from the ſouth-eaſt ſide: you will carry 3 fathoms about twice the ſhip's length after being over. A good leading mark is ſome low land juſt open with the firſt point; you may ſtand till it is two ſail's breadths open, and cloſe it on the other ſhore; but the beſt and ſafeſt mark for croſſing the bar, is to bring Deep-water point to bear N. E. $\frac{1}{4}$ E. you may alſo be guided by the lead, which cannot be done on the oppoſite ſide, being a bank ſteep-to that extends along and acroſs about one third over to the weſtern point of the

Third Reach, and from thence up to the northern extremity of a creek, in that reach, your ſoundings are from 3 to 9 or 10 fathoms.

The bar is narrow, and begins at the entrance of the firſt creek, on the ſouth-eaſt ſhore, having the leaſt water about half a cable's length to the S. W. you then deepen it from 3 to 5 fathoms gradually, and will be abreaſt of the ſecond creek: from this you carry not leſs than $5\frac{1}{2}$ fathoms, about a large cable's length from the larboard ſhore. Keep nearly that diſtance till you paſs Anagrab's Point, as it is ſhoal on the ſtarboard ſide, hard ground, with overfalls, indeed you muſt avoid, for the ſame reaſon, the ſtarboard ſhore, until you are beyond the ſecond opening to the ſea.

The tide flows about 9 feet in the ſprings.



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## 2° DIRECTIONS FOR SAILING FROM POOLO LOUCAVA, AND POOLO LADDA, TO POOLO PENANG, OR PRINCE OF WALES'S ISLAND.

By Captain JOHN WRIGHT.

"IF you paſs the ſouth-weſt end of Poolo Ladda, at about 3 leagues, ſteer S. E. by E and E. S. E. for the Poolo Bountings, until you come, if in the night, into 15 fathoms water.

"You may near the *Poolo Bountings* and *Poolo Biddangs*, of which there are four, within 2 leagues, in 15 fathoms, mud, and from thence ſteer S. S. E. for Poolo Penang harbour; but a ſtranger ſhould not attempt, eſpecially in a large ſhip, to enter that harbour in the night; as he may anchor any where to the northward, in what water he pleaſes.

"The long leading mark for entering from the northward and running into Pinang Harbour is, to keep the weſt end of POOLO JERAGA, or JERAJAH, (which iſland lies between the ſouth-eaſternmoſt end of Poolo Penang and the Malay Coaſt), clear or juſt open to the eaſtward of the point on which Fort Cornwallis is built; this will carry you clear of all danger; the leaſt water being a ½ 4 fathoms, mud, and mud and ſand.

"Should you not ſee Poolo Jeraga, owing to hazy weather, another long leading mark is to high *Poolo Biddan*, or the ſouthernmoſt Poolo Bounting, N. by W. until you get ſight of Poolo Jeraga.

"Cloſe in with the north-eaſt point of Poolo Penang there is a large rock called the *Poolo Teecoos*, with ſome ſmall rocks round it; you may in turning in for Penang, ſtand cloſe to them, there being no danger but what is ſeen.

"On the 26th of July, 1793, I worked into Penang harbour from the northward, with a a freſh breeze from the S. S. E. on the laſt of the flood, which ſets to the ſouthward. Tacked occaſionally on the Malay ſhore in 8 fathoms, and on the iſland ſide in 6, 5, and a ½ 4 fathoms, but I think the laſt caſt, *viz.* ½ 4 fathoms was much too near the Mud Flat, which ſtretches from the north-eaſt point of the iſland to very near the point on which the fort ſtands.

"On the coaſt to the northward of Poolo Penang, it is high water, on full and change days, at 12 o'clock; but in Penang harbour it is high water at 3 o'clock on the ſame days: the flood runs to the ſouthward, and ſets fair through the channel.

| | | Latitude. | | | Longitude. | | |
|---|---|---|---|---|---|---|---|
| | | ° | ′ | ″ | ° | ′ | |
| POOLO BOUTON | Weſt and Eaſt Iſlands lie in | 6 | 30 | 0 | | | |
| | Eaſt Iſland in - - - - - - - - | | | | 99 | 24 | Eaſt. |
| Per *Captain Green* | Weſt Iſland in - - - - - - - | | | | 99 | 15 | |

*Snow Grampus*, 9th *March*, 1789, *at* ½ *paſt* 4 *P. M.*

Poolo Rat, or Rat iſland, when in one with the ſouth-weſt end of Poolo Loucava, or Poolo Ladda, bore N. by W. ½ W.

INSTRUCTIONS

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## INSTRUCTIONS FOR SAILING FROM DONDRA HEAD, IN CEYLON, TO PARCELAR HILL, IN THE STRAITS OF MALACCA.

By Captain THORP.

" FROM Dondra head, to the Nicobar Iſlands, you will make 12° 13′ Eaſt. The great Nicobar may be ſeen in the latitude of 6° 35′, but the weather is generally thick. You have ſoundings not above 2 or 3 leagues off, *viz.* 60 fathoms at 2½ leagues, 40 at 1½ league, and 18 at ½ mile coral rocks.

From the Nicobars ſteer E. S. E. the great iſland bearing North about 50 leagues; it will bring you in ſight of Poolo Gomez and Acheen Head. All along the Sumatra ſhore it is deep water, for which reaſon, as ſoon as you have made any part of Sumatra, ſteer over E. by S. or E. by N. as the wind will permit, to get over to the eaſtward. In the latitude of 6° 35′ or 40′ you will make ſeveral iſlands, ſome in the ſhape of ſlippers; run in till you can ſtop with the ſtream anchor, for you frequently meet with a N. E. current. You muſt wait for the wind, which you generally have in the evening, and will find it tedious: but this ſhore is the beſt on account of a current ſetting right out, when you keep the Sumatra ſhore on board.

" Off POOLO PENANG, the Dutch and Portugueſe lay down a ſmall rocky ſhoal with 20 feet water, but I never ſaw it nor minded it. As you go to the Southward you will make the land ſhewing in deep bays.

" When you come up with the Sambilans at 3 leagues diſtance, and you are in want of water, ſtand in for POOLO DINDING, which is a very ſecure place to anchor at, obſerving the following directions.

" Within 2 leagues of the Sambilans, ſteer in N. E. for Poolo Dinding, which will bear N. E. by N. and ſome high land that makes the bay on the eaſt ſide of the iſland, N. E. by E. The Sambilans from S. E. by S. to S. by E. 5 leagues, a ſmall rock lies in the paſſage, which is ſufficiently high to be ſeen, if there be a good look-out kept, and the night not very dark. To avoid it you may keep in 28 or 30 fathoms, as there is 20 and 24 cloſe to it: you may ſee Poolo Jarra, bearing S. W. ½ W. 9 leagues.

" As you run N. E. and N. E. by E. juſt as you find the tides to ſet, you open the *Two Dindings*; luff cloſe to the innermoſt, keeping near the bluff point of Dinding, for nearer the eaſtern ſhore than the iſlands, you will meet with ſhoal water and hard ground. When you haul about the point, which will be N. W. you will ſee the ruined Dutch fort, and ſeveral rocks which you may approach as near as you chooſe, there being 5 fathoms cloſe to them. You will ſoon find out the watering place, when you go to this fort. From the ſmall rocks juſt now mentioned to Poolo Dinding, you will meet with a few caſts of irregular ſoundings, from 15 to 8 fathoms, and deepening again; but as you run farther in your ſoundings are regular.

" Nearly abreaſt of the north end of Poolo Dinding there is a ſhoal, which is avoided in ſtanding

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ſtanding no farther inſhore than 8 fathoms: as you approach to the ſouthward you deepen, and may run cloſe inſhore.

" When you run out, and get clear of the Sambilans, ſteer over for the ARROAS, and keep within 4 leagues of them: for if you are at a greater diſtance, your ſoundings, if regular, will be upon the *North Sand*. Keep the Arroas in ſight, or 2 or 3 leagues off, until you get the round one W. by N. then PARCELAR HILL will bear to the northward of Eaſt, and your ſoundings will be upon the *South Sand*, where you muſt keep them; for if you get the hill to the ſouthward of Eaſt, and diſcern the trees on the low land, you will perhaps meet with a rocky place $\frac{1}{2}$ a mile in length, and having no more than $2\frac{1}{2}$ fathoms."

## DIRECTIONS FOR SAILING
## FROM MADRAS TO THE STRAITS OF MALACCA.

By Captain RICHARD RAWLINS.

" FROM Madras to the ſouthernmoſt of the *Nicobar Iſlands*, in the latitude of 6° 47′ North, the courſe is S. 64° E. diſtant 900 miles; M. diſtant 13° 30′ Eaſt; thence to Poolo Pera in 5° 41′ latitude North, the courſe is E. by S. 290 miles; M. diſtant 5°—To Poolo Penang, in latitude 5° 25′, the courſe is E. S. E. diſtant 83 miles. You may ſail within 2 leagues of the ſhore from Poolo Penang to Poolo Sambilan S. S. E. and S. E. by E. about 75 miles; keep within 3 leagues; the tide ſets N. W. and S. E.—From Poolo Sambilan to the entrance between the Sands, the courſe is S. E. by E. 40 miles; then you will have layed the Sambilans, and got ſight of the tuft of trees E. by S. keep 3 or 4 leagues off ſhore, and bring Poolo Parcelar E. S. E. and ſteer in for it. The beſt judgment is by the lead, when you have made the latitude of 3° 6′ North, the tuft of trees N. E. 5 leagues, the two rocks on the larboard ſide Eaſt, 3 leagues, Parcelar S. E. 6 leagues; the ſea breaking on the ſtarboard Sand W. S. W. 2 leagues, and at a diſtance from the ſhore 3 leagues. Keep as near the edge of the Off-ſand, as you may ſee the breakings, but if you come too near, and your ſoundings ſhould be ſand, haul in. When you are up with the land, you will perceive the ſea breaking on the ſtarboard ſide, and then you are abreaſt of the Head-ſand on the larboard, which has 2 fathoms at high water. If it be tide of ebb, ſteer S. S. E. if flood, ſteer South, but do not come within 3 leagues of the ſouthward Sand. After you are paſt the Sand abreaſt the river, 3 leagues off ſhore, you will meet with unequal ſoundings. When Parcelar Hill bore E. $\frac{1}{2}$ S. we deepened from 16 fathoms, ooze, to 17 fathoms, ſand, and near the ſhore; we hauled off, and in a glaſs's time had 19 fathoms, ooze; then ſteered S. E. by E. from 22 to 28 fathoms. Small ſhips, and few of them bound to Salangore, paſs in the inner channel.—Poolo Parcelar bears from the Arroas E. $\frac{1}{2}$ N. about 18 leagues; they are eaſily ſeen together, but when you lay the latter, you begin to outer the ſand, and it is proper to bring Parcelar E. by S. $\frac{1}{2}$ S. edging to the ſouthward, that when you come within 8 leagues thereof, it may bear E. by N. or E. $\frac{1}{2}$ N. leſt you ſhould run on the North Sand, where there are but 2 fathoms; between the ſands it is ſteepto, with uneven ſoundings.

" It

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" It is high water at 5 o'clock, full and change; the tide ſets S. E. by S. and N. W. by N. 2 miles *per* hour; it ebbs 7 hours, and flows 5."

In this article the paſſage from the Nicobars toward Poolo Pera being only mentioned, without any inſtructions, we muſt have recourſe to thoſe of a modern navigator, whoſe ability and experience are univerſally acknowledged.

" Ships who prefer," ſays Mr. *Lindſay*,* " going to the ſouthward of the Nicobar Iſlands, as ſoon as they have rounded their ſouth end, which lies in latitude 6° 53′ North, ought to ſteer E. by N. till a conſiderable way to the eaſtward of the Iſlands, ſay 20 leagues, nor ought to regain the latitude of the ſouth end, till at leaſt 60 degrees to the eaſtward of them, to avoid, as long as poſſible, getting out of the range of the S. W. winds, which are ſoon intercepted by the high lands of Sumatra, extending along the whole coaſt of Pedir, up to Diamond point, and from thence up the ſtraits to abreaſt of Pulo Varella. This coaſt may be ſeen above 20 leagues, but it ought by no means to be approached nearer than 30 leagues, till near the meridian of Diamond point, which you ought to paſs in the latitude of 6° 30′ North, from whence, if the winds permit, ſo as to paſs half-way between Pulo Perah and Pulo Bouton.

" In this run you will probably have, for the firſt 50 leagues, a continuance of the monſoon, after which it will probably leave you, and be ſucceeded by variable winds, and calms of ſhort continuance; alſo ſtrong and noiſy riplings, but I never found a current of the leaſt conſequence to the Eaſt, or Weſt. I have found myſelf two or three times nearer the Sumatra coaſt than I expected, but knew not whether to impute it to currents, or the ſteerage. I have more than once been led to attempt puſhing round Diamond point, as the ſhorteſt cut up the ſtraits, from the appearance of winds continuing, and got into tedious calms, and a drain of current, ſetting to the N. W. In July, 1795, a French ſquadron having come through the ſtraits, and captured my veſſel, among others, they drifted along the coaſt of Pedir, in light winds and calms, from Diamond Point to Pulo Way in three days."

## INSTRUCTIONS FOR SAILING FROM BENGAL, OR THE SAND-HEADS, TO POOLO PENANG, AND THENCE TO ACHEEN HEAD,

### BY MR. JOHN WALES, 1796.

" LEAVING the Pilot out of the river in the middle of March, you will find that the prevailing wind, until you get into 20° latitude North, or thereabouts, blows from the ſouthward. Were I to go out at that time, bound to Poolo Penang, I would haul upon the ſtarboard tack, by the wind, and ſtand to the eaſtward. Ships will generally ſtand Eaſt, or E. S. E. ſometimes S. E. by E. till they come to the above parallel, when they uſually meet with light winds and calms; but often find the winds ſuddenly ſhifting to N. W.—North, and then round to N. E. This latter wind prevails in March, in the middle of the

* Directions, &c. P. 4.

Bay

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Bay, when it is not influenced by adjacent lands, and will continue till you approach Preparis, or that chain of iſlands which runs from Cape Negrais, down to Acheen Head, where it generally hauls round to N. W. or N. N. W. *Sometimes, however*, the N. E. wind will prevail.

" The current in this track I generally found, in March, very ſtrong to the South and Weſt; ſo that it is well to keep to windward, if you intend going to the northward of the Andamans. Should you fall to leeward, the beſt courſe would be to run down the weſt ſide of the Great Andaman, and go through the channel between that iſland and Little Andaman; for a ſhip muſt go well to work round the north end of the great iſland, againſt the ſtrong currents which run there. Obſerve, likewiſe, that the currents between the Andamans and Penang, in March and April, are very variable, but generally ſetting to the Southward.

" When you are paſt the chain of iſlands, the winds become in general light and variable, and the beſt courſe I can recommend is, to ſhape it ſo as to fall about 3 or 4 leagues to the weſtward of Poolo Bouton, the weſternmoſt of the iſlands forming the Loucava Archipelago: from thence to Poolo Penang, the land and ſea-winds ſometimes prevail, particularly if near the Queda ſhore, about the Bounting Iſlands, in the depth of from 7 to 12 fathoms; and there is no danger but what may be ſeen. By theſe means a veſſel may anchor, if it falls calm, and the currents (which ſometimes run ſtrong) ſet her off: Beſides, wind is always to be had on that coaſt at night; for I have often ſeen veſſels becalmed in the offing, when I had a good breeze inſhore.

" There is no danger going into Penang, except a ſhallow bar ſtretching from a rock (the *Teecos Rock*), cloſe in to the north end of Penang, entirely over to the Malay coaſt; but you have not leſs than 4 fathoms at low water, ſpring-tides: mid-channel; or rather approaching the Malay coaſt, is the proper poſition to croſs this bar.

" If a ſhip ſails from the pilot by the 15th March, and does not meet with very light winds indeed to protract the paſſage, I think ſhe can reach Poolo Penang by the end of the month; there ſhe may probably ſtay ſix or ſeven days: we will therefore ſuppoſe ſhe leaves Penang for Bencoolen by the 10th of April at fartheſt. Throughout the mouth of Malacca Straits, the winds are very variable, ſometimes Eaſt, ſometimes from the ſouthward; light breezes in general. I never went through the ſtraits but once, and that was in June; but I have often gone from Penang to Acheen Head, and if that route is taken, I ſhould recommend to ſtand to the W. S. W. and even S. W. ſhould the wind hang to the N. W. and to endeavour to gain the Sumatra coaſt, where there are always ſea and land-breezes: when beyond Diamond point, the current (out of ſoundings) runs ſtrong to the weſtward, you then may eaſily get out to ſea, if the S. W. Monſoon has not ſet in; this generally happening with the full or new Moon in May, or late in April, when it is the caſe ſome difficulty will be found in weathering the north-weſt ſhoulder of Sumatra; however, every thing depends on the weather; it is not always boiſterous.

" Further I know not, as I never was more than 6 or 7 leagues down the weſt coaſt of Sumatra, but any of the traders on that coaſt can give you the neceſſary information; though



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for my part I ſhould aſk no advice, truſting as I have always done to the wind, and never hampering myſelf with the ſhore, when I wanted to make a quick paſſage, I generally ſucceeded."

## POOLO PENANG, *(PINANG)* OR PRINCE OF WALES's ISLAND.

SEVENTEEN or 18 leagues from the ſouth-weſt point of Junkſelon are the SEYORE or SEYER ISLANDS, conſiſting of a principal iſland ſurrounded with many ſmall ones, and the whole of them little known. And about 45 leagues ſouth-eaſtward from Junkſelon you find the port of Queda.

Fourteen or 15 leagues South of the port of Queda lies the iſland heretofore called POOLO PENANG*, and now PRINCE OF WALES's ISLAND. This iſland was given to Captain *Light*, by the king of Queda, and poſſeſſion taken by that officer for the uſe of the Eaſt India Company, Auguſt 11th, 1786. It is about 13 miles long, North and South, and from 5 to 7 miles broad: the middle is pretty high, the ſouth part low, and the north part, which is the higheſt of the iſland, has on its north point a round hillock, which makes it eaſily known; on this ſignal-flags are hoiſted. The weſtern coaſt forms a bight with a ſandy ſhore; near the ſouth point of this bight, there is an iſlot upon which may be found very good water. There are alſo ſome rivulets of freſh water on the iſland.

FORT CORNWALLIS ſtands on the north-eaſtmoſt point, in 5° 27′ latitude North, and 100° 20′ 15″ eaſt longitude, 2 miles only from the Malay Shore.

The town called by us *Georgetown*, and by the natives *Tanjong Panaique* may contain, including Company's ſervants, and European ſettlers, with their dependents, about 4000 reſidents. The itinerants may, at a medium, amount to a 1000; ſo that the total population of GEORGETOWN, the capital of the iſland, is about 5000 heads.

The chief articles of trade are pepper, tin, beetle-nut, grain, and gold, for which are given opium, piece-goods, arrack, dollars &c. Here you may be ſupplied with wood and water at a cheap rate, alſo with bullocks, and other proviſions in plenty, unleſs a fleet arrive, which render theſe articles ſcarce and dear.

There is a good channel between Prince of Wales's Iſland and the Malay coaſt, with a good depth of water. The channel to the ſouthward of it, between *Poolo Jeraga* and *Poolo Kio*, has been lately ſurveyed, and completely buoyed. In conſequence, ſhips drawing 24 feet may with great ſafety go in and out, without the aſſiſtance of a pilot. The diſcovery of this paſſage has proved highly advantageous to the infant colony of this Iſland; many ſhips touch there, bound to China, late in the ſeaſon; which they formerly were cautious of doing, from the circumſtance of the N. W. winds ſetting in in the month of Auguſt: and they were generally 3 or 4 days beating round the north end of the iſland, which diſtance they may now run down in an hour.

* From the Malay word, which ſignifies *Beetle-nut* and *Arecka*.

*Situation*

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*Situation and Colour of the different Buoys in the South Channel of Prince of Wales's Iſland, numbered according to their Diſtances from the Fort, with Remarks made by Sir Home Popham.*

| | | | |
|---|---|---|---|
| Praya Buoy, - - - - | No. 1, | in 9 feet - | Black, |
| North Buoy, on the Long Sand, - - | 2, | 3¼ fathoms | Red, |
| Middle Buoy, on the Long Sand, - | 3, | 3 ditto, | Ditto, |
| Buoy of the Middle Ground, - - | 4, | 3 ditto, | White, |
| Jeraga, or South Buoy of the Long Sand, | 5, | 3¼ ditto, | Red, |
| South Buoy, Praya Sand, - - | 6, | 8 feet, | Black, |
| Mud Flat Buoy, - - - | 7, | 3½ fathoms, | Ditto. |

" PRAYA SAND, on whoſe northern pitch the Praya Buoy ſtands, is the moſt, indeed the only dangerous ſpot in the New Channel—it ſhoalens ſo ſuddenly that a ſhip ſhould never ſtand nearer to it, in working out or in, than a cable's length, and about that diſtance Weſt of it there is 10 fathoms, which is the deepeſt water I found in ſtanding acroſs from the Praya Sand to the Long Sand; the channel between theſe two Sands being about three quarters of a mile wide.

" No. 1. The Buoy of Praya bears from the flag ſtaff at the Fort S. 15° E. diſtance 4,600 yards—although I mention the diſtance in yards, I beg it may not be ſuppoſed that it was calculated from a fundamental baſe line; for as I had only a few days to examine this channel I could not ſpare half the time to meaſure a baſe on the Praya ſhore; I therefore contented myſelf in uſing the diſtance from the Fort to Poolo Jeraga as a baſe, whenever I could ſee any of the Buoys from each end of it; I alſo meaſured the bar which I likewiſe uſed; and determined the diſtance of ſome of the Buoys by report from the guns of the Fort. The reſpective diſtances are therefore ſet down by the mean of what I eſteemed the beſt admeaſurement."

" No. 2, or North Buoy of the LONG SAND:—I placed this Buoy, as a guide to veſſels, not to borrow too near the Long Sand, which commences about 1,800 yards South of the Fort Point, and runs within a mile of the North point of Jeraga, when it either terminates upon a mud flat, or the tides from the two channels have forced a certain quantity of mud upon its ſouth end. This Sand, according to Mr. Light's general chart, (from which I borrowed the diſtance of Jeraga from the Fort), is about 1,300 yards wide, on its wideſt part. There are ſeveral hollows or ſmall bights on the eaſt ſide of the Sand; therefore no perſon will, I hope, attempt to croſs the northern Buoy with a veſſel drawing above fifteen feet, and to make it a rule not to come within 6 fathoms, unleſs he can depend on his veſſel's working quick, in that caſe he may go into 5 fathoms.

" No. 3, or Middle Buoy of the LONG SAND:—This Buoy ſtands on the weſt part of the bar, about 300 yards ſouthward of which the Long Sand is ſo ſteep-to, that you ſuddenly ſhoalen from 7 to 3 fathoms; therefore do not go to the weſtward of it, till you are nearly ¼ a mile to the ſouthward, when the ſoundings become more regular.



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" No 4, or Buoy of the MIDDLE GROUND, bears from the Fort S. 2° E. diſtance 6,850 yards :—This Buoy ſtands on the northern part of the Middle Ground, which is a narrow hard ſand, running nearly S. S. E. terminating on the ſouth part of the Praya Sand, and theſe ſands both end on the Kio Mud Flat. The middle ground is ſo very narrow, that you cannot get two caſts of the lead in croſſing it: you have no leſs than 17 feet on it at low water, ſpring tides; in general more. When it is neceſſary to croſs it, the Buoy of Middle Ground, on with the northern Buoy of the Long Sand, is a mark for being on it; but it cannot be any object to croſs it when you are more than ¼ a mile to the ſouthward of the Buoy of the Middle Ground, then the channel to the Eaſtward becomes very narrow.

" No. 5, Jeraga Buoy, or South Buoy of the LONG SAND, is N. 66, Eaſt, diſtant 1,400 yards from the north Point of Jeraga, upon the ſouth-eaſt part of the Long Sand, or north-eaſt part of Jeraga Flat; to the ſouthward of it the ſoundings are regular and ſoft; and it is a mark for rounding the flat in hauling in for the iſland.

" No. 6, South Buoy of PRAYA SAND, bears from the Buoy of the middle S. 20° Eaſt, 2,100 yards:—Come no nearer this Buoy than 3¼ fathoms, from which it ſhoalens ſuddenly to 2 fathoms."

" No. 7, Mud Flat Buoy :—This Buoy is on the KIO FLAT—it bears E. 3° North from the north end of Jeraga, diſtance about 3,000 yards—I placed this Buoy as a guide not to borrow too much on the Kio Flat, for although the ground is very ſoft, yet the ſoundings are irregular."

## GENERAL DIRECTIONS FOR GOING OUT OF POOLO PENANG HARBOUR.

### By Captain Sir HOME POPHAM.

" THE beſt time for a large ſhip to go out, is to weigh at half flood, hauling up for Praya Buoy to avoid the Long Sand; when a cable's length to the weſtward of this Buoy, ſteer over for the middle, and when you have 6 fathoms, haul up to the S. W. or W. S. W. till the Buoy of the middle bears S. by E. then ſteer S. by W. and you croſs the Bar in ¼ 5 fathoms—at high water you will have at leaſt 5.

" The Bar is about 380 yards in length; the Buoys lie from each other E. 14° South, and W. 14° North—on the Bar there is a ſwatch, but ſo narrow, that it is impoſſible to give a good mark to hit it without a Buoy of the fairway—at low water ſpring tides there is 18 feet on the ſhoaleſt part, which is neareſt the Long Sand, 20 feet every where elſe, and in the ſwatch 4 fathoms. The tide riſes here from 8 to 9 feet. When you croſs the Bar you will inſtantly have 7 fathoms; you may get two or three caſts 8; and then you ſhoalen gradually to 5½, which you will have between the Mud Flat Buoy and the north point of Jeraga. As ſoon as the north point of Jeraga is to the northward of you, you will deepen your water, and you may then haul in for the iſland.

After you have croſſed the bar, ſteer South, obſerving to keep one of the Bar Buoys to the eaſtward, and the other to the weſtward, and in that direction you will have the moſt water.—

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water.—To the ſouthward of the north point of Jeraga, you deepen gradually to 6 and 7 fathoms, which you will carry all the way out. The nearer the iſland, the deeper the water. The ſoundings in the fair channel are mud.

## INSTRUCTIONS FOR SAILING FROM POOLO PENANG TO ACHEEN, &c.

By Captain HULL of the *Carnatic* Country-Ship, in Company with H. M. Ships *Diomedes* and *Heroine*, 1ſt July, 1794.

IN ſailing from Penang to the Coaſt of Pedee, (Pedir) or Acheen, during the S. W. Monſoon, ſteer W. by S. and Weſt, keeping in the latitude of 5° 15′ North; the courſe about 150 miles diſtance will bring you in with the Sumatra Shore, 4 or 5 miles to the ſouthward of Diamond Point, which lies in 5° 18′ latitude North: there you muſt meet with ſea and land-breezes, and may coaſt it from Diamond Point to Acheen, in 4 or 5 days, keeping the ſhore well on board: this coaſt is bold and clear of danger.

About 12 leagues Weſt of Diamond Point, you ſee a high mountain, called the *Friar's Hood*, and alſo the Elephant, bearing W. S. W. When you have coaſted it to the weſtward ſo as to bring that mount to bear S. S. W. by no means quit the ſhore, but keep it cloſe on board, it being ſteep-to, with no ſoundings almoſt cloſe to it, and all along very ſafe. In doing this you get to the roads of Acheen without difficulty—whereas, by keeping off the coaſt during this month, you meet with ſtrong winds, which blow in the Straits from Weſt to W. S. W.

A ſhip bound from Acheen to the Weſt Coaſt of Sumatra during the S. W. Monſoon, is to ſteer from the north end of Poolo Braſſa, off which lie three ſmall iſlands round the outermoſt, within piſtol-ſhot; there you meet with freſh gales which blow along ſhore from South to S. S. W. Carrying a tort ſail, ſtand to the weſtward; you weather the Nicobar Iſlands: two or three degrees Weſt of Braſſa you find the winds more weſterly: lay her head to the ſouth-eaſtward, and no doubt but you will fetch well down the weſt coaſt, where the Monſoon becomes more faint and variable.

## DIRECTIONS FOR SAILING ALONG THE EASTERN COAST OF SUMATRA TO PARCELAR HILL, POOLO VARELLA—THE ARROAS—NORTH AND SOUTH SANDS, &c.

POINT PEDRO, the northernmoſt point of Sumatra, 5 miles to the Eaſt of Acheen Road, and *Tanjong Goere*, or DIAMOND POINT, the weſternmoſt of that iſland, lie E. ¾ S. and W. ¼ N. from each other, at the diſtance of about 42 leagues. The whole Coaſt of Sumatra between theſe two points, is very high land up in the country, with ſome low land by the ſea-ſide. When you are half-way, you muſt not, if poſſible, keep above 3 or 4 leagues off ſhore, in ſoundings of 25 or 30 fathoms, ſo as to be able to anchor in caſe of a calm, or contrary tide, for you often meet with currents ſetting to the northward with great

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great rapidity. We muſt obſerve that many navigators aſſert that you cannot find the above ſoundings within leſs than 3 or 4 miles from the ſhore, which proves how deceiving is the diſtance of ſuch a high land. All along the coaſt the tide flows 10 hours $\frac{1}{2}$ on the full and change.

Before you come to Diamond point, there is a large mountain called the *Elephant*, which is diſtant from it 9 leagues, ſome ſay 15, towards the S. E.* Diamond point is low, and has at its extremity two ſeparate clumps of trees, which appear at a diſtance like two iſlots; the ſmalleſt, being the neareſt to the point, lies in about 5° 17′ north latitude.

Diamond point is encompaſſed with dangers, and, among others, 5 miles to the N. W. lies a dangerous ſhoal, with only 2 and $2\frac{1}{2}$ fathoms on it, and which you muſt not approach nearer than 2 or 3 leagues. From hence the coaſt of Sumatra extends S. E. by S. and has no other elevation but that of the trees with which it is covered. When Diamond point is bearing W. N. W. 5° W. diſtance 4 leagues, the land perceived to the S. E. by S. and S. S. E. appear like a gunner's quoin a little flattened, and the neareſt land to the S. W. by S. at 2 ſmall leagues, forms the entrance of a river; you have there 38 fathoms, ooze with ſome ſand. The ſoundings, 2 or 3 leagues off at ſea, are very unequal, which might intimidate thoſe who expect regular depths, proportional to their diſtance from the coaſt; at 5 leagues they find 35 and 30 fathoms. and in ſome parts only 25 and 20. All the coaſt in going toward the South is low and woody, and the depth begins only to decreaſe at the diſtance of 4 leagues off ſhore, when you approach Poolo Varella, which lies 46 leagues S. E. 3° E. from Diamond point.

Between theſe two places the flood runs S. E. by S. and is much leſs rapid and of leſs duration than the ebb which ſets to the N. W. by N. Captain *Mackmouth* has obſerved that from Pedro point to Diamond point there is generally a N. W. current, eſpecially when the wind blows freſh at Weſt; but that at Diamond point the tides begin, and it flows there at full and change, N. E. by N. or a $\frac{1}{4}$ after 2 o'clock: whereas the ebb ſets out much longer and ſtronger to the N. W. than the flood to the S. E. This accounts for the contrary tides, mentioned hereabove, as well as for the currents often met ſetting with great velocity to the northward.

Poolo Varella, (in the old Charts *Poolo Verura*) lies in 3° 48′ latitude North, 6 or 7 leagues from the ſhore, and may have about 2 leagues in circumference: it is high, woody, very clear and bold, excepting ſome ſandy bays, the largeſt of which is ſeen to the S. E. you may anchor before this iſland in 12 fathoms, and in 18, a mile off ſhore; on its ſouth ſide in a ſmall cove where you may fill water, which runs down a hill into a ſmall well, but very ſlow. Some ſhips have taken turtle at this iſland, in the night-time; and the Suma-

* Mr. *Forten*, maſter of the Kings' Ship *Heroine*, who ſailed along this coaſt, in November 1797, gives the name of *Elephant Mount* to one of the *Telliſamoy* or *Teleſmoy hills*, and places it 5 or 6 leagues to the ſouth-weſtward of Diamond Point: this mountain bearing S. E. by S. *by compaſs*, becomes a mark for the bay and harbour of Telliſamoy, where the *Heroine* anchored in 11 fathoms. This name of Elephant has been applied to ſeveral remarkable Mountains on the north ſide of Sumatra, and they diſtinguiſh, 1ſt. the *Weſt Elephant* to the S. W. of the *Queen's Mount*, 2° the *Elephant* or *Friars Hood*, which ſeems to be the mountain mentioned here; and 3° the *Eaſt Elephant*, a high table-land, which is that of Mr. *Forten*.

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tra fiſhermen frequent it to dry their nets. There is a little rock or iſlot off the north-weſt point, and another to the ſouthward.

To make advantage of the wind you generally paſs between Poolo Varella and the coaſt of Sumatra. There is no danger in ſailing between them, as the bank marked in the Charts has 8 or 9 fathoms water on it; but there are others when you approach the coaſt nearer than 3 leagues, ſo that it is neceſſary to keep ſounding: theſe are, a bank with 7 fathoms, gray ſand, when the iſland is bearing S. S. E. 3 leagues; and which deepens gradually towards it from 10 to 15 fathoms; another ſhoal to the N. E. 8 miles off the north-weſt end of the iſland, with only 2 fathoms; you may ſee its breakers, and are then a-breaſt of it, when the iſland bears S. by E. 3 leagues. There is alſo a bank, from which Poolo Varella bears from E. by S. to E. S. E. 9 or 10 leagues, whereon you find 9 or 10 fathoms, 4 leagues from the Sumatra ſhore.

Seventeen or eighteen leagues E. by N. $\frac{1}{2}$ N. from Poolo Varella you meet with POOLO JARRA, the ſmall Sugar-loaf iſland already mentioned.

When you have paſſed Poolo Varella, ſteer toward the Two BROTHERS, which are two iſlots bearing N. N. E. and S. S. W. about 2 leagues from each other. The northernmoſt (Poolo Pandan or Quandan) is about 3 miles round, and lies S. E. by S. $\frac{1}{2}$ S. 15 leagues from Poolo Varella; the ſouthernmoſt (Poolo Salanama) is a little larger; you paſs to the eaſtward of theſe iſlots, near which you have 29 or 30 fathoms. There is no need to paſs between them and Sumatra; beſides it is reported there is ſhoal water.

From the Two Brothers, ſhips that go to Malacca ſhape their courſe toward the ARROAS E. S. E. about 20 leagues. Theſe iſlands, called alſo *Arroe* or *Arroo*, are in two cluſters which conſiſt of ſeveral iſlots and rocks near each other, and are covered with high trees which make them perceivable 8 or 9 leagues off; each cluſter is named after the two moſt remarkable iſlots among them, *viz.* the ROUND ARROA or *Poolo Jamar*, which is the eaſternmoſt, and lies in 2° 41′ north latitude, and the GREAT or LONG ARROA, about 3$\frac{1}{2}$ leagues in circumference, a low and flat iſland, which is the weſternmoſt as well as the fartheſt to the North. Round Arroa, is the principal leading mark for the channel between the North and South Sands; it is very ſmall, and has a tuft of trees on each ſide: to the N. E. of it about 4 miles, there is a remarkable rock of a black hue, with breakers, which is not to be ſeen far at high water; and another equally remarkable lies N. E. from the Long Arroa. A rocky bank even with the water's edge is ſaid to lie N. W. by W. from the ſame Arroa, at 4 or 6 leagues diſtance. You muſt come no nearer the Arroas than 1$\frac{1}{2}$ league, leſt the ebb tide ſhould horſe you among them and into dangers. There is water enough all round, but the depth is very irregular, as well as the quality of the ſoundings.

If from Poolo Jarra you are ſailing toward the Arroas, which are lying S. S. E. from that iſland about 26 leagues, you muſt, when it bears N. W. 6 or 7 leagues, ſtand away S. S. E. $\frac{1}{2}$ E. and your diſtance being increaſed to 10 or 11 miles, you ſteer then S. E. by S. for the deep water to the north-eaſtward of the Arroas; it is the ſafeſt courſe to prevent your being driven amongſt the dangers to the ſouthward of theſe iſlands.

The courſe of the tides here is the flood S. E. by E. and the ebb N. W. by W.

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Being about 22 leagues from Poolo Jarra, you will have from 36 and 37 fathoms water, to 40, 45, 50 and 55, which decreaſe to 48, when you muſt ſteer a few miles S. E. and S. E. by E. and then E. S. E. till you ſhoal to 15 fathoms, near the weſtern edge of the North Sand: if Round Arroa at this time does not bear more to the ſouthward than S. W. you may croſs in 10 fathoms hard ſand, Parcelar Hill bearing E. S. E. $\frac{1}{4}$ E. ſteer however ſo as not to raiſe the low land of Parcelar till the Hill bears Eaſt of you; for with an E. $\frac{1}{2}$ S. bearing, when the trees to the northward are juſt appearing to an eye elevated 24 feet above the ſurface of the water, or when Parcelar Hill remaining to the E. 3° S. you begin to ſee the great trees upon the low land, at the foot of this hill, and Round Arroa is bearing W. 9° 30′ N. then you would find yourſelf on the ſhoal of hard and ſhining ground, which may be conſidered as one of the moſt dangerous in the Straits; its ſhoaleſt part is covered with rocks on which the ſea breaks, ſometimes at low water, neap tides, and in very blowing weather; and the other parts have only 2, $2\frac{1}{2}$ and 3 fathoms water. It ſhould not be approached nearer than 15 or 14 fathoms. Soundings of ooze are not always a certain proof of the diſtance from its edge, becauſe there are (even upon this ſhoal) ſoundings of that ſort, clear and greeniſh, which would deceive any one who ſhould truſt them. It lies on the north ſide, and in a narrow part of the channel which you croſs from the Arroas to Parcelar Hill. The channel is between two banks, which, from their reſpective ſituation, have been named *North Sand* and *South Sand*.

The NORTH SAND lies N. N. W. $\frac{1}{2}$ W. and S. S. E. $\frac{1}{2}$ E. extending about 9 or 10 leagues to the northward; it is very ſhallow, and its ſouth part has not above 9 feet water at low tide. Its ſouth end, which they call *North Sand Head*, bears E. N. E. 3° E. from Round Arroa, about 9 leagues W. by N. 5 or 6 leagues from the low land of Parcelar, and 4 leagues N. N. E. from the South Sand head, or north-weſt end of the SOUTH SAND; this ſtretches about 15 leagues in a direction from N. N. W. to S. S. E. The channel lies between the two ſands, and is reckoned $3\frac{1}{2}$ leagues broad, with very uneven bottom from 30 to 9 and 10 fathoms: theſe laſt on two banks of very hard ground, from which you have nothing to fear; the weſternmoſt of theſe lies between the heads of the two Sands.

The South Sand, although the beſt to keep on, muſt be approached with great caution, the ſoundings being very irregular and deceiving upon it, and you will fall there from 23 and 22 to 16, 12, 9, 10, 7, and 6 fathoms; in ſome places you have but 3 fathoms, and it is ſaid you find no greater depth on ſome parts of the South Sand head; but the leaſt water there ſhould be 6 fathoms, according to the journal of a ſhip conſulted by M. *Lindſay*.

The tides are very ſtrong between the North and South Sands, and Parcelar Hill. The flood ſets to the S. E. by E.* and the ebb N. W. by W. It is high water on full and change days at $\frac{1}{2}$ after 7 o'clock, and the ſea riſes 8 or 9 feet.

Along the South Sand bank, in the day, you have PARCELAR HILL to guide you, and it is the leading mark to paſs between the Sands, from the Arroas to the Malay Shore. This

* This is according to M. *D'Après*; but M. *Lindſay* ſays, that the flood-tide ſets nearly in the direction of the Sand, though rather ſlanting over that Sand, *its direction being about* S. E. $\frac{1}{2}$ S. and that of *the Sand* S. S. E. $\frac{1}{2}$ E. and N. N. W $\frac{1}{2}$ W. the ebb, adds this gentleman, runs in the oppoſite direction, but with more force.

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mount lies in 2° 48′ latitude North, 17 or 18 leagues E. ½ N. nearly from the round Arroa; it appears the more conſpicuous, as it ſtands upon a low land covered with trees, which extends a good way to the north-weſtward, and is called the *Low Land of Parcelar*.

When you croſs from the Arroas to Parcelar hill, and are obliged to turn through the channel, with contrary winds, all navigators agree that you may bring Parcelar hill from E. 9° S. to E. 9° N. between the extremes of the North and South Sand heads; but if you be ar enough to the eaſtward to loſe ſight from the deck of Round Arroa, before you can diſcover the low land round Parcelar hill, then you muſt not go to the north part beyond the place where you have Parcelar hill bearing Eaſt: becauſe if that hill were to bear E. 3° S. then you ſhould be upon the bank of 2 to 3 fathoms, above mentioned. You may nevertheleſs without danger, borrow more on the ſouth ſide, in bringing Parcelar hill to bear E. 5° ½ N. or elſe E. by N. when you are in ſight of the low land. About the hill, or even farther to the North, it is neceſſary to have a boat ſounding a-head, as it is generally practiſed in the channel.

When you have a favourable wind to croſs from the Arroas, you muſt take great care of the tides, and ſteer ſo as to have Round Arroa bearing W. 5° ½ S.; which is the beſt bearing, till you are in ſight of the low land of Parcelar; then you may bring it to bear E. by N. or more northerly. The navigation of this channel requires ſo much care, that we will add the following general inſtruction, at the hazard of repeating ourſelves.

Being off the Arroas, within 3 leagues of them, in 12 or 14 fathoms water, ſhape your courſe, with reſpect to the tides and winds, ſo as to keep Round Arroa from W. ½ S. to W. ½ S. till you get ſight of Parcelar hill, as above directed; in this track you will have irregular ſoundings from 12 or 14 to 18, 20, and 25 fathoms; and when Round Arroa bears W. 8° S. 6 or 7 leagues, you will ſoon ſhoal your water to 12, 10, and 9 fathoms, when you are on the weſternmoſt bank, and between the North and South Sand heads.

When you have doubled the North and South Sands, you muſt continue the courſe to the E. 5° S. to 1½ league of the low land of Parcelar; then you may ſail to Cape Rachado.

Parcelar hill bearing off you Eaſt or E. ½ S. the following bearings, according to Mr. *Nicholſon*, are pretty good hereabout, *viz.* keep Parcelar hill due Eaſt, and you will have 9 and 10 fathoms on this weſternmoſt bank, and ſoon deepen to 15, 18, 20, 22, and 23 fathoms: then you are between the weſternmoſt and eaſternmoſt banks: the moment you begin to loſe ſight of Round Arroa upon deck, you are coming upon the eaſternmoſt bank, and will ſhoalen your water to 15, 12, 10, 9½ fathoms; and when you can juſt ſee the trees on the low land about Parcelar hill, you are then, as we have juſt now obſerved, abreaſt of the 2½ fathoms bank: if Parcelar hill bears due Eaſt, the bank is then 1½ or 2 miles to the northward of you; you are alſo clear of the South Sand, and may ſteer more ſoutherly, ſo as to bring Parcelar hill E. by N. or even more northerly. By continuing your courſe to the eaſtward you will deepen your water again to 14, 16, 18, 20, 22 and 24 fathoms, ooze; and from 24 ſhoal again to 17 or 18 fathoms, 5 or 6 miles off the low land of Parcelar hill.



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## FROM PARCELAR HILL TO CAPE RACHADO AND MALACCA.

YOU are certain of being paſt all danger from the North Sand, when Parcelar hill being brought to the northward of Eaſt, you have roſe the low land round it; then you may ſteer a channel courſe; Mr. *Lindſay* thinks, however, that it will be preferable at firſt to edge a point inſhore, for the purpoſe of avoiding a *dangerous ſhoal*, on or very near the South Sand, having only 10 feet water on it, and with the following bearings, *viz.* Parcelar hill N. 7° W. and cape Rachado E. 3° S. nearly. They reckon about 11 or 12 leagues E. S. E. $\frac{1}{2}$ E. from the low point ſtretching weſtward of Parcelar hill, to cape Rachado. The coaſt between is low and woody, and forms a deep bight, which you are not to enter. In the opening of this bight, 5 leagues N. W. by W. $\frac{1}{2}$ W. from the cape, lies the *Bambeck Shoal*, on which ſome ſhips have been loſt, and which has 12, 14, and 16 fathoms almoſt cloſe to it, on the ſouth end.

CAPE RACHADO* is a high ſteep hill, cut perpendicularly towards the ſea, and ſomething like Mount Dilly, on the coaſt of Malabar, only not ſo lofty: it projects to ſeaward in a long narrow point of land, which forms a deep bay on each ſide of it, with a ſmall rock or iſlot near its extremity, and a rocky reef extending $\frac{3}{4}$ of a league towards the N. W. When you firſt deſcry cape Rachado, coming from the north-weſtward, it makes like an iſland, on account of its ſituation on a low land, which for ſome time is not ſeen. About a league without the cape, you may ſee the low and woody land of Sumatra from the deck, and this is the narroweſt part of the ſtraits to the northward of Malacca. Cloſe in with the cape you have 30 fathoms water, which 2 or 3 miles off decreaſe to 16, 15, and 14 fathoms.

About 4 or 5 leagues off Parcelar point, and a line ſuppoſed to be drawn from it to cape Rachado, is the edge of the South Sand, which bounds the paſſage on that ſide; and if a foul wind ſhould oblige you to turn cape Rachado, you muſt be cautious of ſtanding too near the coaſt on the one hand, and too near the South Sand on the other. From Parcelar hill to this cape, you muſt keep at leaſt 1$\frac{1}{2}$ mile off, and continue in that direction, and even for ſafety farther off, to round the South Sand, which having been doubled, you ſteer a courſe to go about $\frac{3}{4}$ of a league without the cape. The ſoundings between it and Parcelar hill are from 15, 20, 25, 30, to 35, and in ſome places 40 fathoms; but in general very irregular, deepening and ſhoaling ſeveral fathoms at a caſt; ſo that, in the night-time, there is no judging by them where you are. The ground is all ooze, except about the middle of the channel. The irregularity of theſe ſoundings is fully explained by the diſcovery of Mr. *Lindſay* who has been able to trace and found a bank in the fair way, with a depth from 16 to 18, and 20 fathoms, and deep water on both ſides; its direction is almoſt parallel to the ſhore, and it begins about 7 miles N. E. of the 2 fathoms ſhoal on the North Sand, extending above 10 leagues to the eaſtward, and probably as far as about cape Rachado: it juſtly deſerves the name of LINDSAY'S BANK, and will become a good mark to avoid dangers on both hands.

Within 2 or 3 miles of the cape you will have 18, 22, 23, or 25 fathoms, and only 15,

* This Cape was ſo named by the Portugueſe, from the word "Rachado," which in their tongue ſignifies *ſplit* or *cloven*, but the generality of our ſeamen, preferring an Engliſh appellation, chooſe to give it the name of *Cape Richardo*.

16, or

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16, or 18, at 2 or 2½ leagues, the cape bearing E. N. E. Then 4 or 5 leagues to the weſtward of the ſaid cape, you find 30 and 35 fathoms, from which it ſhoals ſuddenly to 10 fathoms, hard ground, on the South Sand.

Here the tides run very ſtrong, and with noiſy riplings, eſpecially in the ſprings, flowing, on the full and change, N. W. and S. E. or 9 hours, the flood to the ſouthward, and the ebb to the northward.

About 2 leagues E. by S. from cape Rachado is the mouth of the river Lingin, or Linguy a place which produces much tutenague.

MALACCA lies 8 or 8½ leagues E. S. E. from cape Rachado.

From cape Rachado, Malacca hills bear E. by S. ½ S. and *Great Water Iſland* S. E. ½ S. about 12 leagues, but the courſe to Malacca road is S. E. by E. or E. S. E. 9 or 10 leagues, the coaſt between forming ſeveral bays, and there are to be ſeen the mouths of different rivers; but you muſt not come too near the ſhore, on account of the rocks. You have ſoundings of 16 to 20, and 25 fathoms, oozy ground, from 3 to 6 miles off ſhore; only when cape Rachado bears N. W. 3 or 4 leagues, and 4 or 5 leagues off the coaſt there is a hard bank of 13 fathoms, but within as well as without it you find 20 and 24. Alſo, about midway between the latter cape and Malacca road, lies a rock above water, about a mile off ſhore, which cannot be reckoned dangerous, as no ſhips have occaſion to come ſo near the ſhore: ſo that it may be well ſaid, that from cape Rachado to Malacca there is no danger in the Straits.

After you have doubled cape Rachado, you ſteer, as ſaid above, S. E. by E. and ſoon diſcover the tower of Malacca, on this ſide of which you perceive a ſmall iſlot, called *Fiſher's Iſland*, or *Woody Iſland*, and range it along at 1 or 2 miles diſtance to go and anchor in the road of Malacca.

"There is no danger," ſays Mr. *Nichelſon*, "going into Malacca road; if you are in the offing, in 20 or 23 fathoms, you ſhoalen your water gradually to 7 fathoms, as you run in for the road. I would not adviſe a great ſhip to go into leſs than 7½ fathoms; for it ſhoalens ſuddenly from 7 to 5 and 4 fathoms. Ships likewiſe ſhould be ſtill more careful not to go too far to the ſouthward, or to the ſouth-eaſt part of the bay, for there the ground is foul and rocky, and ſhoalens ſuddenly from 8 to 3 fathoms. Off Fiſher's Iſland there is no danger; I have ſounded well about it, and found that a ſhip, upon occaſion, might go within ¼ a mile of it, in 16 fathoms water, or have 10 fathoms within ¼ mile, and 20 within 1 mile of it. You may anchor in Malacca road from 13 to 7½ fathoms, oozy ground, Malacca church on the north-weſt part of Mount Moar, E. 27° 30′ N. the ſouth-weſt part of Fiſher's Iſland W. 36° 15′ N. and the outermoſt of the Four Brothers, or Water Iſlands, E. 50° 20′ S. diſtance from Malacca 1½ mile. The flag-ſtaff bearing N. E. or N. E. by E. Fiſher's Iſland N. W. by W. and the outermoſt Water Iſland S. E. ½ S. you have 8 fathoms. The flag-ſtaff N. E. ½ N. and Fiſher's Iſland N. W. by W. you are in 10 fathoms; the flag-ſtaff N. E. and Fiſher's Iſland N. N. W. ½ W. you have 14 fathoms, all good anchoring ground.

"It flows in Malacca roads, at full and change, S. S. E. and N. N. W. or 10 hours ½.—



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The flood runs E. S. E. and the ebb W. N. W. pretty ſtrong tides. Half flood in the road is high-water aſhore. At ½ ebb a ſhip cannot get into the river."

MALACCA, or *Malack*, lies in 2° 12′ 5″ latitude North, and 102° 10′ longitude Eaſt of London. This city was famous at the time of the diſcovery of the Indies, and the Portugueſe conquered it in 1511; they were expelled in 1641, after a ſiege of 6 months, by the Dutch, who kept it till the Engliſh took poſſeſſion of it, at the beginning of this war, and Malacca was the capital of their ſettlements in the Malay Peninſula. Malacca gives its name to the ſtraits we are deſcribing, between the coaſt of Malay and the north-eaſt part of Sumatra; through theſe ſtraits they go from the North-Indian ſea to the Gulph of Siam, to China, to the Philippine and Molucca iſlands. The ſituation of this city, in the middle of theſe ſtraits, renders it one of the greateſt markets in India. Here the Dutch had a ſtrong fort and a conſiderable ſettlement: the Dutch church ſtands upon a high hill in the middle of the garriſon, and is always kept very white, which, together with its ſituation, makes it conſpicuous at a great diſtance.

When you go aſhore, with your boats, keep the fort well open to the ſtarboard, till you have the river between the fort and houſes; then ſteer directly in for the river, that being the deepeſt channel: the landing-place is on the larboard ſhore, as ſoon as you enter the river, about two ſtone's throws from the bridge. On landing it is cuſtomary to wait on the Shahbunder, whoſe houſe is juſt by; and he ſends to the Governor to know if he is at leiſure to receive you; when you wait on this officer ſome preſent is expected, as well for him as for the Governor. Here is nothing to be had for the people but old buffalo, and the inhabitants are very impoſing. The Engliſh pay 26 *per cent.* on all goods.

We have been treating of the voyages to Malacca, during the N. E. and S. W. Monſoons, from the different places ſituated to the weſtward; but before we proceed to give inſtructions for the reſt of the ſtraits, it appears more convenient that we ſhould direct thoſe who, embarking at Malacca, are bound to any of thoſe weſtern places.

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## DIRECTIONS FOR RETURNING FROM MALACCA TO THE COAST OF COROMANDEL, BENGAL, AND OTHER WESTERN PLACES, AT DIFFERENT SEASONS OF THE YEAR.

### By Monſ. D'APRÈS.

THE bad weather which prevails on the Coaſts of Coromandel and Golconda during the months of November and December, makes it unſafe for ſhips to arrive then at thoſe places, ſo that they are obliged to wait at Malacca till the 10th of December, which is the proper time to undertake this voyage with ſafety.

Having doubled Fiſher's Iſland, which forms the weſt ſide of the road, you ſteer toward cape Rachado, and thence to the low point of Parcelar hill, with a leading gale, the winds blowing then from E. N. E. to N. N. E. and with the help of the tides, obſerving to weigh when they are favourable.

When

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When you have paſſed Parcelar point you muſt ſteer W. N. W. until Parcelar hill bear E. 4° N. then keep it in that direction to paſs between the North and South Sands. This courſe will ſoon bring you in ſight of the eaſternmoſt or Round Arroa, you may perceive it 6 or 7 leagues off, and in clear weather, Parcelar hill and this iſlet can be ſeen at the ſame time.

As ſoon as you are 2 or 3 leagues off the Arroas, you may ſteer N. W. and even N. W. by N. for, in ſight of the little rocks that ſurround theſe iſlands, you are to the weſtward of the banks, which conſequently are doubled: you will be in mid-channel between the banks and the iſlands when the latter bear S. W. 3 leagues. In this part you have ſoundings from 30 to 50 fathoms, when you approach the iſlands; but they decreaſe to 16 and 17 going towards the edge of the North Sand.

Keeping N. W. by N. will bring you in ſight of *Poolo Jarra*, between which and the Sambilans the currents generally run to the N. W. and afford an advantage not to be met with on the Sumatra ſide.

From Poolo Jarra, if you continue your courſe N. N. W. and N. W. by N. you may firſt ſee *Prince of Wales's Iſland*, then *Poolo Pera*, which you may paſs at what diſtance you chooſe.

From Poolo Pera, if you are bound to Pondicherry or Madras, you muſt make the *Nicobar iſlands*, between or to the ſouthward of which you may paſs, as you like beſt. It is reckoned 95 leagues W. by N. 5° N. from Poolo Pera to theſe iſlands. Several ſhips paſs through the Sombreiro channel, which is more northerly: others bound to Pullycat, or Madras, prefer at this time the Ten-degrees channel: of theſe you make choice, according to the port you are bound to.

If you are going to Maſulipatam, or any other place more northerly, it will be better in leaving Poolo Pera, to ſhape your courſe to paſs between the iſlands to the northward of the *Andamans*: this proceeding is ſurer, on account of the winds out in the Bay, which blow from the northward, and the currents running to the ſouthward.

Obſerve farther, eſpecially in January, to make the land always to the northward of the port you are going to; and, as you come near the land, keep a good look out, in order to avoid being deceived by the currents.

Ships from the Gulf of Siam, China, or the Philippine Iſlands, which ſail in February or March, through the Straits of Malacca, for the Coaſt of Coromandel, muſt follow the preceding direction, and ſail by the Nicobar iſlands or through the Sombreiro channel: as to thoſe who go from Malacca to Bengal in the N. E. Monſoon, we ſhall not repeat here what has been already ſaid.

If you undertake this voyage from Malacca, in the months of April, May and June, when the weſterly Monſoon is ſettled in theſe ſeas, you muſt from the *Arroas* ſteer toward the *Two Brothers*, keeping along the coaſt of Sumatra, and the *Acheen iſlands*; thence you endeavour to fall in with the Coaſt of Oriſſa in latitude 18° 30′ North; as it has been ſhewn in the inſtructions concerning the voyages of Bengal, to which the navigator is referred for the reſt.

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Thoſe who ſail from Malacca, at the end of October or November, for the Malabar coaſt, muſt ſteer from *Poolo Pera* to go to the ſouthward of the Nicobar iſlands; then ſhape a courſe to make the iſland of Ceylon to the northward of the Baſſas, and ſail along the ſouthern coaſt of that iſland, as it is ſhewn in the inſtructions for voyages from the Coaſt of Coromandel to that of Malabar.

## DIRECTIONS FOR SAILING THROUGH THE STRAITS OF MALACCA, FROM MALACCA TO THE STRAITS OF SINCAPORE—PESANG BANK AND ISLAND—POOLO COCOB, &c. &c.

WHEN you weigh from the road of Malacca you are to paſs without the *Water Iſlands*, which are called alſo the *Four Brothers*, the ſouthernmoſt of which bears 3 leagues S. E. by S. from the anchorage, and may be coaſted at about ½ a league diſtance. You deepen your water gradually from 8 to 20 fathoms; and from 5 to 6 miles without theſe ſmall iſlands, you will have from 20 to 25 fathoms, the bottom oozy, and good anchorage. Hereabout the flood runs S. E. by S. and the ebb N. W. by N. at the rate of 1½ knot.

A long narrow bank lies 6 or 7 leagues S. W. from theſe Iſlands, with only 3 fathoms on it, and 6 cloſe to its edge, and is the only danger till you come off the mouth of Formoſa river.

Seven leagues from the Water iſlands lies the low Point of MOUNT MOAR or *Mount Moora*, a detached hill near the ſhore, covered with trees, and remarkable for the land about it being all low and woody; it bears E. by S. from the Water iſlands, and N. W. by W. 5 or 6 leagues from Mount Formoſa: abreaſt of its low point about 2 miles diſtance, lies a bank of breakers called the *Hannah's Shoal* near which you have 7 fathoms: your courſe muſt be ſhaped ſo as to paſs the low point within 4 or 5 miles, and in the track you have ſoundings from 20 to 22 and 25 fathoms, oozy ground, and from 3 to 5 and 7 four miles off ſhore. If the winds be contrary, you may ſtand over from 15 fathoms on the Malay ſhore to 15 on the Sumatra ſhore, but no nearer. The tides here about are very uncertain.

Having paſſed the ſouthernmoſt Water iſland you ſteer S. E. or S. E. by E. to give a good birth to Formoſa point and river, before which there is a narrow bank whoſe outer edge extends about 4 miles from the coaſt; it lies along ſhore S. E. by E. and N. W. by W. from its ſouth-eaſt end, Mount Formoſa is bearing N. E. by E. ½ E. and Mount Moar N. W. by N. From the north-weſt end Mount Formoſa bears E. ½ S. and Mount Moar N. N. W. this bank has only 5 fathoms ſand on it, with deep water on both ſides.

From the low point of Mount Moar to Mount Formoſa the coaſt ſtretches S. E. and S. E. by E. MOUNT FORMOSA, ſometimes called *Mount Ophir*, is better diſtinguiſhed than the former; and from the ſouthern or outermoſt Water iſland, from whence it may be juſt ſeen, it bears

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bears E. S. E. ½ S. 13 or 14 leagues; it is the higheſt top of a long ridge of hills near the ſhore, which are ſeen to extend inland.

When Mount Moar is bearing North, and Mount Formoſa E. by N. and Poolo Peſang juſt in ſight, you are near the end of a bank which ſtretches from thence about 13 leagues to within a few miles of Poolo Peſang, and in a direction N. W. by W. and S. E. by E. To this long flat *M. Lindſay* has given the name of PESANG BANK; all over the eaſtern and middle parts of it, you have ſoft clay with 12, 10, and 9 fathoms; towards the eaſt end it becomes harder but deeper, and ſhoals to 7 and 6 fathoms. On the ſouth ſide of it about 2 leagues diſtance, Mount Formoſa bearing north nearly, and Poolo Peſang about E. by S. 5 or 6 leagues, there lies a dangerous ſhoal, which extends 7 or 8 miles in a direction almoſt parallel to the Peſang bank, with only 4 fathoms water on it, and 3½ in the middle. The proper channel is between this bank and the Malay ſhore, the width being about 12 miles, with the Peſang bank, whoſe breadth is ſuppoſed to be 2 or 3 miles, running in the middle of it.

From Mount Formoſa to Poolo Peſang the direct courſe ſhould be S. E. by E. the diſtance is between 8 and 9 leagues. Having doubled the bank off Formoſa river, when the Mount bears N. E. between 3 and 4 leagues, you will raiſe this iſland bearing S. E. ½ E. or S. E. by E. you will then have ſoundings from 20 to 22 or 23 fathoms, oozy ground. In turning to windward on this courſe, "the Peſang Bank," obſerves M. *Lindſay*, "is of the greateſt ſervice both for anchoring on during the ebb, and for the purpoſe of keeping on, either in the night or day, during the ſqualls, which are generally accompanied with rain; for by ſteering along its verge, on either ſide, you may run the whole length of the bank without fear or danger, and upon deepening off the end of it, may ſteer for mid-channel, between the Carimons and Poolo Cocob. By keeping in 11 or 12 fathoms on either edge, if you deepen your water, you know which ſide to ſteer towards; whereas, by running along the top of the bank, if you deepen, it is uncertain on which ſide."

POOLO PESANG is a pretty large, high, and woody iſland, which lies at 2 leagues diſtance from the main, and forms a channel, in which there are not leſs than 4 fathoms water; on the weſt ſide of it lie 3 other ſmall iſlands, the largeſt of which affords ſometimes good water, and boats may land there commodiouſly at high water, in a bay on the north-weſt part: this iſland may be ſeen in clear weather 9 or 10 leagues off; then it makes in little hummocks, like a boat turned bottom upward. It flows here North and South.

Ships always keep on the Malay ſide (on which they may borrow when neceſſary into 11 or 12 fathoms with ſafely), becauſe off the oppoſite ſhore, beſides the 4 fathoms ſhoal, are many others, and foul ground.

Poolo Peſang bears about N. E. by E. from the eaſt end of the Peſang Bank, the channel there being not above 3 miles over, with a depth from 15 to 17, 20, 18, and 17 fathoms water, and not more, according to common opinion, than 4½ miles throughout.

"But," ſays Mr. *Nichelſon*, "the channel is at leaſt 2 leagues wide, and I am well aſſured of it by my own experience; for when Mount Formoſa bore N. ½ W. Poolo Piſang E. ½ S. 4 leagues, and Great Carimon iſland S. E. we had from 21 to 22 fathoms water; we ſteered



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E. S. E. ½ S. 6 miles, and had from 21 to 17 fathoms; Mount Formoſa bearing then N. by W. ½ W. and Poolo Piſang E. ½ N. 6 or 7 miles. We ſteered the ſame courſe 5 miles, and had from 17 to 19½ fathoms, now Mount Formoſa (which is the leading mark through between the iſland and the ſand*), bore N. N. W. ½ W. and Poolo Piſang E. N. E. northerly. We ſteered S. E. 3 miles, and had from 20 to 21 fathoms, and Mount Formoſa bore N. N. W. ½ W. Poolo Piſang N. E. ½ E. 5 miles, and Great Carimon S. E. by S. then we were clear of the ſand to the ſouth-weſtward of it. This proves that the channel is wider than moſt navigators have ſuppoſed it. We were a fleet of 11 ſails, and much ſcattered; ſeveral ſhips without and within us, 3 or 4 miles, and none had ſhoalenings on this ſand."

From Poolo Peſang to Poolo Cocob, or *Cacaps*, the diſtance is about 5½ leagues S. E. ½ E. This is a low flat iſland, ſo cloſe to the Malay ſhore that you cannot diſtinguiſh it as an iſland till you have paſſed it; but it may be known by its trees, which are of a very bright green. Between Poolo Peſang and Poolo Cocob lies a ſmall ſand-bank, which you may avoid by keeping a little off the Coaſt of Malay. You have ſoundings in this track from 17 to 20 fathoms, mud.

You muſt obſerve that between Poolo Peſang and Poolo Cocob the Malay coaſt is flat and ſhoal; therefore you are not to approach it nearer than 14 or 12 fathoms, nor to bring Poolo Peſang farther to the weſtward than N. W. or N. W. ½ N. or ſtand nearer the Sumatra ſide than 15 fathoms; under this depth, there is foul ground, and ſhoal water, particularly when the eaſt point of the Carimons bears S. E. ½ E. 4 or 5 leagues; the outermoſt of the Two Brothers, (two ſmall rocks) right on with it, about 3 leagues, and Poolo Peſang N. ½ E. about 2 leagues diſtance, it ſhoals ſuddenly from 15 fathoms, ſoft, to 9 fathoms hard ground. The Two Brothers bear from Poolo Cocob S. W. by S. and between them are good ſoundings from 24 to 15 fathoms.

The tides between Malacca and Poolo Peſang, generally flow North and South, or at 12 o'clock, full and change, the flood to the S. E. and the ebb, which is the ſtrongeſt, to the N. W. but this general rule is much ſubject to variations.

## DIRECTIONS FOR SAILING THROUGH THE STRAITS OF SINCAPORE—ELMORE CHANNEL—PORT OF RHIO, &c.

THREE or four miles S. E. by E. from Poolo Cocob lies a broad point of low land, covered with trees, called TANJONG BOULUS, or TANJONG BOURO; this point is the ſouthernmoſt of the Malay Peninſula, and of the continent of Aſia; it bears from the eaſt end of Little Carimon Iſland N. E. by N. and this diſtance, about 3 leagues, makes the entrance of the STRAITS OF SINCAPORE*, in which you may ſtand to each ſide in 15 or 16 fathoms, ſoft ground, and no danger. Beyond Tanjong Boulus the coaſt of Malay forms a bight wherein ſome little rivers empty themſelves; on the eaſt ſide of the bight is a ſmall iſland, called by the Portugueſe *Ilha de Cobra*, or Snake's Iſland, between which

* Mr. *Nichelſon* means the Peſang Bank, which he muſt have ſuppoſed to be dangerous.

† The Portugueſe and the French give it likewiſe the name of *Governor's Straits*, or *New Straits*.

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and the iſland of Tooly, to the ſouthward, is the entrance of the *Old Straits*, ſcarcely 2 miles broad, and into which the tide ſets very ſtrong.

The Carimons are two pretty large and high iſlands, called LITTLE or NORTH CARIMON, and GREAT CARIMON, each remarkable by its peak, the higheſt of which is that of Great Carimon. Between Poolo Cocob and the Carimons you have from 17 to 20 and 24 to 17 fathoms toward the latter, which you are not to approach nearer than that depth, oozy ground from ſide to ſide; the eaſt end of Little Carimon lies S. by W. and $3\frac{1}{2}$ leagues from Poolo Cocob.

Two ſmall iſlands, called THE BROTHERS, lie about $2\frac{1}{2}$ miles N. W. from Little or North Carimon; the northernmoſt one is to be kept in one with the north end of that iſland, and ſhould you open it, you will come into ſhoal water.

The tides from the Straits of Sincapore, and thoſe from the Straits of Dryon to the ſouth-eaſtward, meeting here in ſome meaſure, become very uncertain in this entrance, and depend much on the wind; they ſet ſtronger to the eaſtward and the ſouthward, but generally longer to the N. W. ſometimes 18 hours one way, and 6 hours the other.

"When at anchor, in 22 fathoms," obſerves M. *Nichelſon*, "Tree iſland bearing S. E. by E. 2 miles, we found the tide ſet $1\frac{1}{2}$ knot from N. W. to North for 12 hours; ſometimes it would ſlack, and then run ſtrong as before. It ſometimes runs as long or longer to the S. E. and much ſtronger."

TREE ISLAND, or SANDY ISLAND, a narrow iſlot lying E. S. E. and W. N. W. about 2 miles in length, is conſidered as the moſt dangerous part of theſe ſtraits: it is nothing more than a long ſandy bank, having a rocky ledge of breakers running from its weſt end about a mile weſtward, and over which the ebb-tide ſets, and ſome others at the eaſt end. At low water this iſland is dry, and at high water it is almoſt entirely covered, there being nothing to be ſeen but a Remarkable Large Tree, which is neareſt the eaſt part of it, with two cluſters of ſmaller trees, about three quarters of a mile from each other, and a few ſmall rocks. When diſtant 3 miles S. S. E. it has the following appearance.

The large tree bears from the north peak of Great Carimon N. $\frac{3}{4}$ E. and from the ſouth part of Barn iſland S. by W. 5 miles.

This iſland being ſteep-to, and therefore the more dangerous to be approached, in the night eſpecially, as you can form no judgment of its diſtance by the ſoundings, if it cannot be ſeen, you are never to come under 15 or 16 fathoms.

To the ſouthward of Tree iſland, 2 or 3 miles, lie two iſlots called the *Brothers*; and to the E. S. E. of it, about 3 or 4 miles, you come to RED ISLAND, ſo named from the redneſs of the ſand on its beach. It is ſmall, covered with green trees, and may be ſeen at a pretty good diſtance. To the northward and ſouthward of this are a great number of other iſlands, and amongſt them two more remarkable than the reſt, to the ſouth-eaſtward, which are called *Long Iſland* and *Round Iſland*. The bearing of Red iſland, from the ſouth part of Barn iſland, is S. by W. about 4 miles. In caſe of neceſſity you may anchor abreaſt of Red



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iſland, in 18 fathoms water: but come no nearer it, on account of the ſeveral rocks which ſurround it.

Before we proceed farther we muſt obſerve that, to the ſouthward of Tree iſland, there is likewiſe a reef that ſtretches a great way off, and to which ſhips bound through the Straits of Dryon muſt give a large birth.

BARN ISLAND (called by the French *Square Iſland*, or Paſſage Iſland) is bearing, at its ſouth part, from the north ſide of Little Carimon E. $\frac{1}{4}$ N. diſtance $6\frac{1}{2}$ or 7 leagues. It is a pretty large iſland, high and woody; on the weſt ſide of it there is a white mark, which at a diſtance much reſembles a large barn, by which it may be eaſily known. There is good anchorage to the weſtward of Barn iſland, from 9, and even from 7, at low water, to 14 fathoms, at a diſtance from $\frac{3}{4}$ to $1\frac{1}{2}$ mile off ſhore, the iſland bearing from N. E. to S. E. You have a good birth with the outermoſt of the two iſlots, Rabbit and Coney, bearing Eaſt ſoutherly, and the extremes of Barn iſland from E. N. E. $\frac{1}{4}$ N. to N. by E. about $\frac{3}{4}$ of a mile off ſhore. The Coney bearing E $\frac{1}{2}$ S. and Red Iſland S. by W. you are in 9 fathoms; Red Iſland being S. S. W. the Coney E. N. E. and Tree iſland W. by S. you have 15; the Coney E. S. E. $\frac{1}{2}$ E, Tree iſland S. S. W. $\frac{1}{2}$ W. and Red iſland S. S. E. your depth is 7 fathoms, about $1\frac{1}{2}$ mile from Barn iſland.

The RABBIT and CONEY are two ſmall rocks or iſlots, which are ſteep-to, and lie about $\frac{1}{2}$ a mile S. by W. $\frac{1}{2}$ W. from the ſouth part of Barn iſland; when they are in one they bear, according to Mr. *Nichelſon*, N. by E. $\frac{1}{2}$ E. and S. by W. $\frac{1}{2}$ W. and according to M. *D'Après* N. by W. and S. by E. there are 22 or 20 fathoms within $\frac{3}{4}$ of a mile of theſe rocks; and at 1 or $1\frac{1}{4}$ mile to the eaſtward of them you have irregular ſoundings, from 19 to 30 fathoms, rocky ground. From the Rabbit and Coney you find to the weſtward of Barn iſland, from 22 to 14 fathoms; there you may anchor in clear ground, as we have juſt now ſaid, on a bank about $1\frac{1}{2}$ or $\frac{3}{4}$ of a mile off ſhore, between which and Barn Iſland you have 18, 19, and 20 fathoms, gravelly ground. The ſouthernmoſt of theſe rocks the French have called *the Viol*, on account of its ſimilitude to that inſtrument at a certain point of ſight. The diſtance from this rock to Red iſland is about 4 miles, S. W. $\frac{1}{2}$ W. and is conſidered by ſome as the weſt entrance of the Straits of Sincapore.

Being mid-channel, between Tanjong Boulus and Little Carimon, in ſoundings from 17 to 20 fathoms, oozy ground, ſteer to the ſouth-eaſtward till you bring the north point of Little Carimon to bear W. $\frac{3}{4}$ S. or W. $\frac{1}{2}$ S. then ſteer to the eaſtward with theſe bearings, and you will have from 18 to 20 fathoms: and as you advance to the eaſtward, the north high peak of Great Carimon will be brought in one with the ſouth point of Little Carimon, which will then bear W. by S. $\frac{1}{2}$ S. and its north point W. $\frac{1}{2}$ S.

Theſe are good leading marks to go clear of Tree iſland, about 2 miles to the northward of it. You muſt not come under 9 fathoms, until the iſland bears S. W. on account of a danger which is ſaid to lie 4 or 5 miles off, and not much out of the track. Endeavour to get a ſight of Tree iſland, as ſoon as poſſible, as it lies in the fair way, and is one of the beſt marks for Sincapore channel; but you are to be very careful of the ſetting of the tide, which in this part is very uncertain; you muſt alſo avoid the northern ſhore, leſt, being becalmed, or having a ſoutherly wind when out of the true tide's courſe, you ſhould be driven in the Old Channel;

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Channel; it would then be difficult to get into the fair way again, on account of the conſtant indraught which is found amongſt theſe iſlands.

Continuing to ſteer to the eaſtward, with either or both of the above leading marks on, you will ſoon perceive the white mark on Barn iſland, bearing E. $\frac{1}{4}$ S. and may ſteer right for it, with great ſafety. The ſoundings, in the middle of the channel, between Tree iſland and Barn iſland are from 24 to 30 and 33 fathoms, which decreaſe on the ſide of Tree iſland to 15 and 16 fathoms; under which, as we have already obſerved, it is not adviſable to go: on the ſide of Barn iſland they ſhoal to 10 or 9$\frac{1}{2}$ fathoms, about $\frac{1}{4}$ of a mile from the weſternmoſt part of it, where there is good anchorage, as it is likewiſe mentioned here above. From that depth toward Barn iſland, you deepen your water to 14, 18, 19, and 20 fathoms, and toward the Rabbit and Coney, from 10 to 14, 16, 20 and 22. You can paſs, if there be occaſion, within a $\frac{1}{4}$ of a mile of the Rabbit and Coney, in 20 and 22 fathoms, red gravel.

You may keep in the middle of the Sincapore Channel, which lies between the Rabbit and Coney and Red iſland, but it is better to ſtand nearer the Rabbit and Coney, which are bold to; whereas the ſouth ſhore is foul and dangerous, with ſunken rocks, ſome of which are like the weſternmoſt rocks, that lie S. E. by S. 4 or 5 miles from Barn iſland, and can only be ſeen at low water: you have 30 fathoms about a mile to the northward of them, and 20 fathoms have been found cloſe to them: there is not more of theſe rocks dry at low water, than the bigneſs of a ſhip's long boat.

Next to theſe is a ſingle black rock, called by ſome the *Elephant*, but more generally the *Buffalo*, about the ſize of a ſhip's long boat, which is always to be ſeen; it lies about one half of the channel over from the iſlands, on the ſouth ſide, and is ſteep-to, having 17 or 18 fathoms cloſe to it, and 30 a little without it; this bears from the former danger about Eaſt; from Barn iſland E. by S. 6 or 7 miles, and from St. John's iſland S. W. $\frac{1}{4}$ S. 2$\frac{1}{2}$ or 3 miles.

The third danger is a ledge of rocks always above water, and a ſhoal without it, which lie E. by N. 6 or 7 miles from the ſecond rock, and S. E. $\frac{1}{4}$ S. from St John's iſland; but the ſhoal lies S. E. by S. from that iſland, between which and the rocks, you have from 15 to 18, 20, 30, 40, and 50 fathoms water; and then ſhoalen again ſuddenly to the ſouthward. The diſtance of the ſhoal from St. John's iſland is 4 miles, which make there the width of the channel.

Being abreaſt of the Rabbit and Coney your courſe to St. John's iſland is E. by N. or E. N. E. according to the wind; the diſtance is about 10 miles, in ſoundings very irregular from 30, 25, 20, and 18 fathoms, hard ground, decreaſing 5, 6, or 8, and ſometimes 10 or 12 fathoms at a caſt. In this track you ſhould borrow on St. John's iſland, in order to avoid the dangers, above deſcribed, on the ſouth ſhore. You may go within a mile or leſs of that iſland, clear of all danger, it being ſteep-to; within a $\frac{1}{4}$ of a mile from it you have 20 and 24 fathoms; and off its ſouthern part it deepens toward the ſouth ſhore to 30, 40, and 50 fathoms, and then ſhoalens ſuddenly.

ST. JOHN'S is a pretty large and high ISLAND, covered with trees, having two ſmall iſlets to the weſtward pretty near it. This is the eaſternmoſt iſland, as Barn iſland is the weſtern-



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moſt, on the north ſide of this narrow paſſage; and they bear of each other E. by N. and W. by S. about 3 leagues. In caſe you want wind, or tide to paſs through before night, there is good anchorage under St. John's iſland, from 12 to 14 fathoms, the iſland bearing from W. S. W. to S. W. by W. about 2 miles diſtance. There, and indeed on moſt of theſe iſlands, you may have plenty of water, and of wood for cutting. You can anchor with as much ſafety to the weſtward of Barn iſland, as before mentioned; and likewiſe between St. John's and Barn iſlands, though it is beſt not to chooſe this anchorage, if it can be avoided; for the bottom is rather foul and the ſoundings irregular.

The tides are very ſtrong between St. John's and Barn iſlands, and they ſet as theſe iſlands lie, the flood E. by N. and the ebb W. by S. the time of their flowing is uncertain; but they run longer to the eaſtward in the S. W. Monſoon, and the contrary in the N. E. Monſoon.

From St. John's iſland Point Romania, which is the ſouth-eaſt extremity of the Malay Peninſula, lies E. by N. $\frac{1}{2}$ N. diſtance 8 or 9 leagues, and Pedra Branca E. by N. 10 or 11. Between theſe places is a wide and clear channel, eſpecially on the north ſide, except a ſand which ſtretches out S. E. from the eaſt end of Sincapore iſland, about 6 or 7 miles, even as far as the mouth of the River Johore; it is ſteep-to, having from 12 to 14 fathoms juſt without it. Its bearings are St. John's iſland W. S. W. 6 leagues; the eaſt end of Sincapore iſland N. W. by N. $2\frac{1}{2}$ leagues: Johore hill N. E. and the eaſternmoſt land to be ſeen off point Romania E. $\frac{1}{2}$ N. 6 leagues. Come not under 18 or 20 fathoms water, nor nearer the ſhore than 3 leagues, till you are paſt the ſaid bank; taking care to keep St. John's iſland W. by S. and point Romania E. by N.

When you have doubled this dangerous bank, you may keep in with the north ſhore, (the coaſt being clear and ſteep) in ſoundings from 15 to 16 fathoms, oozy ground; or in the fair way, from 20 to 25 or 30 fathoms, ſteer directly for Pedra Branca, to the northward of which you muſt paſs.

Point Romania toward its extremity is low, but on this ſide it riſes into a little hill, called *Mount Barbucet*, which in coming from the northward ſerves as a mark to enter the Straits, and when in one with the ſouthernmoſt iſland off the point, it bears W. N. W. To the eaſtward of Point Romania are ſeveral large rocks above water, encompaſſed with many other, always covered, which together form a very dangerous reef.

Pedra Branca, (the *White Stone)* commonly Pedra Blanca, ſo called from its being covered with birds' dung, which makes it look white, is low and very ſteep; it lies from the outermoſt rock or iſlot off Point Romania E. by S. $\frac{1}{2}$ S. about $2\frac{1}{2}$ leagues, which is the breadth of the channel. In mid-channel the ſoundings are 25 fathoms; near the reef off Point Romania 18 or 20; and near Pedra Branca 30 fathoms; but to the eaſtward of Pedra Branca it decreaſes again to 20, 15, and 12. Pedra Branca bearing W. by S. 3 leagues, there are $12\frac{1}{2}$ fathoms, ſandy ground; but near the reef you have hard ground, and uneven ſoundings from 17 to 12 fathoms.

This reef off Point Romania is more extenſive and dangerous than it is generally imagined. "We went through theſe ſtraits," ſays Mr. *Nicholſon*, "in the night, by moonſhine,

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ſhine, with the wind at S. E. and dragged along the ſouth ſide of the reef in 20, 19, 18, 22, 20, and next caſt had 17 fathoms. I could ſee (by altering the land) that a very ſtrong tide ſet us to the eaſtward; and, by ſhoalening the water, imagined we were coming near the ſouth-eaſt part of the reef; whereupon anchored in 17 fathoms, and lay till day-light; when the ſhip was brought up, tried the current, and found it ſet N. E. by N. 4 knots; and at day-light had theſe bearings, the outermoſt iſland off Point Romania W. S. W. $3\frac{1}{2}$ leagues, and Pedra Branca S. S. E.

" His Majeſty's ſhip *Panther* made the ſignal of diſtreſs, being amongſt the ſhoals; ſhe bore off us N. N. E. about a mile diſtance. She was in 4 fathoms, and had only $3\frac{1}{2}$ all round her, except the place ſhe got out at, and there but bare 4 fathoms. At 6 A. M. we weighed, being ſlack tide, or low water, and ſteered E. $\frac{1}{4}$ N. 3 miles, in 17, $16\frac{1}{2}$, 17, and 18 fathoms; then ſteered N. E. by N. 2 miles, and had from 18 to 24 fathoms; then Bintang hill bore S. $\frac{1}{2}$ E. Barbucet hill W. $\frac{1}{2}$ N. Pedra Branca S. by W. weſterly, and the outermoſt iſland off Point Romania W. by S. $\frac{3}{4}$ S. about 4 leagues.

" I would not adviſe a ſhip, going through theſe ſtraits to the eaſtward, with the wind South or S. E. to come nearer the ſouth ſide of this reef than 20 fathoms; for it ſhoalens very ſuddenly from 17 to 12, 8, 5, and 4 fathoms, with overfalls of 4 or 5 fathoms at a caſt; and be careful to obſerve the ebb-tide, which ſets right over the reef very ſtrong; for the tide would very ſoon have ſet us near to where the *Panther* was, had we not anchored as we did.

" Pedra Branca bearing S. W. by S. about 4 leagues, you are clear of the reef; and for a long ſafe leading mark, keep *Bintang Hill*, on the north part of the iſland of the ſame name, S. by W. $\frac{1}{2}$ W. which will lead you clear of the reef, in no leſs than 15 or 16 fathoms. By ſteering to the north-eaſtward, the water deepens faſt to 20 and 25 fathoms.

" Pedra Branca, by a good obſervation, lies in latitude 1° 20′ or 22′ North, and bears from Bintang hill N. $\frac{1}{2}$ W. about 5 leagues. From Pedra Branca to the outermoſt part of the reef, the courſe is N. E. by N. 5 leagues; and when Bintang hill bears about S. $\frac{3}{4}$ W.* 6 or 7 leagues, in 12, 14, or 15 fathoms, oozy ground, you are without the end of the reef, and may then ſteer N. N. E. or N. by E. for Poolo Aore. Bintang and Barbucet hills bear from each other about N. W. by N. and S. E. by S. 9 or 10 leagues.

" In the N. E. Monſoon the flood runs ſtrong into the ſtraits, through the narrow paſſage between the Romania rocks and Pedra Branca (S. W. without, and W. S. W. in the narrow paſſage) frequently for 12 hours together, and ſometimes longer, when it blows freſh. But in the S. W. Monſoon the ebb-tide runs longeſt to the E. N. E. and N. E. over the reef, at the rate of 4 knots. The time of high water, at full and change, is uncertain; only in the S. W. Monſoon it flows neareſt North and South, or 12 hours; but in the N. E. Monſoon it has great dependence on the winds."

* The bearing at S. by W. $\frac{1}{2}$ W. given in the firſt edition of this book, carries the ſhips coming from the northward to enter the Straits, too far to the Eaſt; or, as obſerves Mr. *Lindſay*, to whom we owe this important correction, when they get ſight of Bintang, they are too far to the South to be able to get round to the northward of Pedra Branca.

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The paſſage to the ſouthward of Pedra Branca, between that Iſlot and Bintang, has obtained the name of ELMORE CHANNEL, Captain *Elmore*, of the *Gratitude*, Country-ſhip, being the firſt who explored it, in his voyage from China bound to the Straits of Malacca, December 19th, 1784. It appears as ſafe at leaſt as the paſſage to the North of Pedra Branca, as will be ſeen by the following abridgment of his Journal.

" At 7 A. M. wind N. W. by N. ſteered W. by S. At 8 ſaw Pedra Branca, bearing W. by S. At ½ paſt 10 paſſed to the ſouthward of Pedra Branca in 10½ fathoms water, at about 3 or 4 miles diſtance, and pretty near the ſame from the Bintang ſhore; and no danger but is to be ſeen above water (though *Nicholſon* ſays there is no paſſage to the ſouthward of Pedra Branca.) We could diſcover neither rocks, breakers, nor ſhoals, and it ſeems to be a ſafer paſſage than that to the northward of Pedra Branca. A cane ſhip in company appeared fearful of coming between Pedra Branca and Bintang, but after we had made ſeveral ſignals to her ſhe came the ſame paſſage.

" At noon Point Romania N. by W. ¼ W. Barbucet hill N. N. W. ½ W. Bintang hill S. E. ¼ S. Johore hill N. W. ¼ W. Soundings from the eaſt part of Bintang to the northweſt point as follows: 16, 16, 15, 14½, 13, 12, 11½, 11½, 11½ 11½, 11½, 10 fathoms.—Abreaſt of Pedra Branca 10½, 10½, 11, 12, 14, 15, 17 fathoms."

POOLO BINTANG, or *Bintam*, is a large iſland, within which, on the weſt ſide, is the town and PORT OF RHIO, or REEO, a port of great commerce, which is now (in 1780) the medium of communication with China, and a great mart for tin.* A number of European veſſels, Malay prows, and China junks, annually reſort thither, both on account of the goodneſs of the harbour, which is a ſalt-water creek, and of its being a free port.

Bintang lies between ſome other large iſlands, ſuch as *Poolo Galaat*, *Poolo Battang*, &c. on the Weſt, *Poolo Panjang* on the Eaſt, whoſe weſternmoſt point, being very high, is often miſtaken for *Bintang hill*. Bintang is ſurrounded likewiſe with many ſmall iſles and ſands, between which you can ſail all round the iſland, in no leſs water than 5 fathoms: the weſt channel or ſtraits is the beſt and ſafeſt to go to Rhio. A ſhoal lies at the entrance, on either ſide of which you may go, and which may be avoided with the following marks, taken by the French ſhip *Vigilant*, *viz.* the weſternmoſt point of Battang W. N. W. Bintang hill S. E. by E. ¼ E. Barbucet hill N. ¼ W. Rhio Shoal then bears Weſt to W. by N. ¼ N. diſtance 2 or 3 miles. The courſe in from the ſhoal is about 5 leagues S. by E. to the narrows at the weſt point of *Poolo Luban*, or *Labong*, and no danger but what you ſee: then you ſteer 3¼ E. S. E. or E. by S. to the anchoring place: the depth, after you have paſſed the ſhoal, is from 15 to 18, to the narrows, and from 12 to 6 between the narrows and the anchorage. You anchor in 6 or 7 fathoms water off *Poolo Beringa*, or *Hog Iſland*, at the entrance, and about 4 miles off the ſouth creek of Rhio. The latitude of the anchorage is 0° 57′ North.

* See what Captain *Leſley* has ſaid of the other articles of trade, in ſpeaking of Coringa Bay.



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# INSTRUCTIONS FOR SAILING IN THE S. W. MONSOON, FROM THE NICOBAR ISLADS, THROUGH THE STRAITS OF MALACCA AND SINCAPORE.

By SENHOR PEDRO DE NOVA, an experienced Portugueſe Pilot, who carried the CAMDEN through theſe STRAITS in June 1770.

## 1° FROM *POOLO RONDO* TO THE *ARROAS* ALONG THE *SUMATRA SHORE:*

" IN May, June, July, and Auguſt, the S. W. Monſoon being at its height, the winds in the Straits blow chiefly from S. E. to South, as, in the N. E. Monſoon, they blow a good deal to the N. W.

" Enter the Straits by Poolo Rondo, and ſteer along the Sumatra ſhore until you reach *Diamond Point*, along which coaſt you have no ſoundings, (one place excepted off Pedir river) but at 2 miles, or better, from the ſhore.

" When abreaſt of Diamond point you have ſoundings, from 30 to 50 fathoms, all the way from the Sumatra ſhore to Poolo Pera, and from thence to the Malay ſhore.

" It is ſafer to enter the ſtraits by the Sumatra than by the Malay ſhore; becauſe, in paſſing over from Poolo Rondo to Poolo Bouton, ſhould the wind come from the S. S. E. or ſhould it fall calm in the middle of the paſſage, the N. W. continually draining thereabouts, (in the S. W. Monſoon) may ſet a ſhip up into 7° or 8° North, before ſhe reaches the coaſt, and all that you will have to work back again; this very caſe has happened to ſeveral ſhips. Along the Sumatra ſhore, nearing down Diamond point, you are leſs ſubject to calms, and generally find a drain ſetting into the ſtraits in with the ſhore.

" At Diamond point you meet the tide ſetting S. E. and N. W. varying a point or two in different ſituations. The drains to the N. W. ſet ſtronger and longer than thoſe to the S. E. (but ſeldom in the wide part of the ſtraits) above $1\frac{1}{2}$ knot an hour.

" An Indiaman ſhould, beſide her ſtream anchor and cable, have one or two anchors of 14 cwt. with two ten-inch cables: a ſhip may then anchor, if the wind ſets in to the S. S. E. which often happens, blowing freſh 7 or 8 days; or if it falls calm, and the currents againſt her, there are ſcarcely any winds, in the ſtraits, that ſuch a kedge or ſtream would not hold or ride them with a large ſcope. You may, as ſoon as you are the length of Diamond point, ſtretch acroſs with ſafety, always ſecure of ſtopping when the current is againſt you; and it is by theſe means the Portugueſe work down to the Arroas, whilſt other ſhips are loſing ground. There is good anchoring along the Sumatra ſhore, and Diamond point, to Poolo Varella, and over alſo to the Malay ſhore, by Penang, Dinding, and the Sambelans; provided, as above directed, a ſhip is ſo found as to bring up in the deepeſt water there is acroſs the wide part of the ſtraits, whenever ſhe is becalmed, and finds the current againſt her.

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" In gaining along the Sumatra ſhore to *Poolo Varella*, keep without the *Brothers*, and do not anchor under 30 fathoms; there are many ſpots of ſoft clean ground, but under that depth it is generally very foul.

" From the Brothers ſteer E. S. E. for the Arroas, from whence they are diſtant 23 leagues; the Brothers lie S. E. by E. about 9 leagues from Poolo Varella; the Arroas bear from *Poolo Jarra* S. S. E. diſtant about 22 leagues.

" The *Arroas* in ſight, ſteer within 7 or 8 miles, until you bring the Round or Great Arroa W. $\frac{1}{2}$ S. working in ſight of the Long or Little Arroa; you will not get leſs than 30 fathoms, without going too near ſome of the rocks. *Note.* It is to be obſerved, that the depths in general, through the Straits, are very irregular, but eſpecially where the ground is hard.

" The *Long Arroa* muſt not be approached nearer than 7 or 8 miles; at that diſtance you have 32 fathoms, or thereabouts, good ground; but nearer the ground is rocky and dangerous, beſides the uncertainty of the ſets amongſt theſe iſlands.

" If you keep the Arroas on board, by this direction, you cannot have under 30 fathoms, when the Round Arroa bears S. W. and from that bearing till it bears W. S. W. Between the North Sand and the Arroas lies a very irregular bank with ſoundings, from 15 to 6 or 7 fathoms, altering 4 and 5 fathoms at a caſt; it is not dangerous, but alarming to ſtrangers, no mention being made of it in the draughts."

## 2° From the *ARROAS* to *PARCELAR HILL*.

" IF you ſtand over to the *North Sand*, you may anchor in 16 or 18 fathoms, a proper diſtance from it; and if you have a leading wind from the N. W. or if the wind is from the north-eaſtward, you may ſteer in that depth, along the edge of the ſand, about S. S. E. or S. by E. until you bring the Round Arroa W. $\frac{1}{2}$ S. almoſt ſunk from the deck; but in running down along the North Sand, do not loſe ſight of the Arroas, and you will not be too near the Sand.

" The Round Arroa, W. $\frac{1}{2}$ S. ſteer Eaſt for *Parcelar Hill*, having a proper regard to the tides, to prevent your altering the bearings of the Round Arroa: Parcelar hill riſes in ſight from the quarter deck, before you ſink from thence the two ſmall rocks appearing on each ſide of the Round Arroa; bring the hill E. $\frac{1}{2}$ N. (*by the azimuth compaſs*) and have a due regard to the tides, not to alter this bearing; and in that caſe you will never have leſs than 15 fathoms, or thereabouts, through the channel. When the Round Arroa is ſunk from the deck, you are abreaſt of *South Sand Head*, and therefore entered the channel; the hill E. 9° N. you are on the edge of the foul ground: and the little hill E. by N. you would be on ſhore on the South Sand Head, where there is from 9, 8, 7 fathoms to 1 fathom, faſter than you can heave, the ground foul and ſtony. The North Sand is much more ſteep and dangerous: a Portugueſe ſhip, the hill E. $\frac{1}{2}$ S. of her, had but 6 fathoms; the anchor let go, and with only $\frac{1}{3}$ of a cable, the tide ſetting to the N. W. ſwung on ſhore,

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ſhore, and cloſe within the anchor was only 2 fathoms: ſo very ſteep is the North Sand Head, that, in turning over, you muſt never bring the hill to the ſouthward of Eaſt, nor more to the northward than E. ¼ N. ſtanding no nearer to the Head than 12 fathoms.

" With the hill E. 2° N. and a leading wind, you will carry 16 and 17 fathoms all along the channel, until you come to ſoundings on the other ſide of the Sands; you will then deepen, and get into ſoft ground. The breadth between the Sand Heads, where you would be on ſhore on each ſide, is 7 or 8 miles.

" In the night you muſt not weigh, unleſs before dark you have anchored within or abreaſt the South Sand Head, and the bearings of the hill are E. 2° N. In this ſituation you may weigh as ſoon as the tide ſets S. E. by S. if the *Sumatra* is come on, ſteering Eaſt when the winds is light, and E. by S. when it is freſh. (*Note:* A *Sumatra* is the wind blowing from that ſhore about S. or S. W. it generally begins about midnight, and laſts till 2 or 3 o'clock in the morning.) Running thus will carry you, from 15 to 17 fathoms, quite acroſs, very regular ſoundings, fine ſand: if you find you ſhoal under 15 fathoms, ſteer a little more to the eaſtward.

Should you weigh in the night, the wind at N. W. or N. by W. ſteer E. ¼ N. through the channel; but if you ſhould ſhoal to 10 fathoms, keep away E. S. E. until you deepen again; you are then very ſafe, and may ſteer through the proper courſe. Heave quick during the night, and never offer to run with the ebb on any account, that is, when the tide runs to the N. W. its ſets are very uncertain, and the winds are the ſame. But the ſet of the flood is true, and when half through the channel, the tide ſets clear of the South Sand, or only juſt ſlants over the weſternmoſt parts of it, where the ground is good, and the depth ſafe; but with the N. W. tide you are liable to be horſed on the North Sand Head, without the leaſt warning to prevent it.

" In running in the night, and when it is too dark to ſee Parcelar hill, be governed by the following rule: If it is calm, obſerve what the tides go; when you are at anchor, and if you have not that opportunity, allow on the full of the ſprings, 2½ knots and on the neap 1½ hour, through the Straits, and ſo proportionally: add this to what the ſhip goes by the log each hour, and run altogether by wind and tide, 15 miles from ſinking the Round Arroa, from the deck; you will then come to 22 fathoms, ſoft ground, and may ſtand away E. S. E. or E. S. E. ¼ S. keeping between 22 and 19 fathoms, for about a league. Then ſteer S. E. until you ſee the hill, or low land, which you will do by the time you are through the channel, unleſs it is very dark. But ſhould you run a little too far to the eaſtward, before you ſee the land, from the darkneſs being too great, you may anchor in 12 fathoms water, 1½ mile from the low land off Parcelar hill or point, certain of being ſafe through the channel, ſhould the tide, or wind, make it improper to run farther."



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## 3° From *PARCELAR POINT* to *CAPE RACHADO.*

"OFF *Parcelar Point*, you may ſtand in 14 fathoms, in turning, and then about; and ſtand off about 2 miles, not going under 24 or 25 fathoms, until the hill bears N. E. or N. E. by N. The ſoundings between the Sand and the Malay ſhore, from Parcelar to *Cape Rachado*, are too irregular to be any guide. The hill N. E. by E. if you ſtand on to the land, you may be ſoon aſhore; but when it bears N. E. by N. you may ſtand on, or over it; you will carry no leſs than 12 fathoms over it, though the overfalls may be ſudden from 18 or 20 to 14 fathoms.

"That this may be done with ſafety, is of conſequence to be known; for the winds hanging to the S. E. and S. S. E. and in the middle of the night blowing from the Sumatra ſhore, from S. W. to S. it is a practice with thoſe who are experienced in the Straits, to anchor always in the evening on the ebbs, to or on the Sand; by this they make a great advantage of the *Sumatra*, or night winds, which ſeldom fail laying them round cape Rachado, and would have been of little or no ſervice on the Malay ſhore. In the morning ebbs they anchor cloſe in with the Malay ſhore, and lay for turning in the channel, if they have a S. E. wind, or driving if calm: the ſun being in general ſo very powerful in theſe Straits, the middle of the day is much ſubject to calms, the freſheſt wind always blowing at night, or in the morning early. Between Parcelar point and cape Rachado, lays a very dangerous ſhoal 2 leagues from the ſhore, and about 2 miles long. From cape Rachado, 9 or 10 miles, is a little iſland 1¼ mile from the ſhore, which lays within it, and when it bears N. N. E. you may ſtand within 2 miles of the ſhore.

Parcelar point and cape Rachado lay N. W. and S. E. from each other, the land between them running into a large bight: take care by your bearings to keep without them both, and nothing can hurt you. In ſtanding in there, do not come under 18 fathoms in the night, nor under 15 in the day, and no nearer: off Parcelar you may ſtand, if well acquainted, to 12 fathoms. Cape Rachado is ſteep to; you have 20 and 25 fathoms within a mile of it.

## 4° From *CAPE RACHADO* to *MALACCA*, and *POOLO PESANG.*

"FROM this Cape to Malacca, ſtand no nearer to the Malay ſhore than 15 fathoms in turning, but on the other tack you may ſtand well over to the Sumatra ſhore, as the Sand to the ſouthward of that, which forms the ſouth ſide of the channel (paſſing over from the Arroas to Parcelar hill) and lies from cape Rachado down to Malacca, has very unequal ſoundings, but no where leſs than 10 fathoms on it. It is of conſequence to know this, that, by ſtanding over and well to the Sumatra ſhore, you may by that means fetch, with the aſſiſtance of the night-winds already mentioned, Malacca road much ſooner than you would do, with the winds hanging to the eaſtward of South, by ſhort boards along the Malay ſhore.

"Anchor

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" Anchor in Malacca road in 7 or 8 fathoms water, ſoft ground, the church on the hill N. E. by E. more northerly is not ſo well, the ground being rocky and coarſe.

" From Malacca ſteer to give the *Agoada*, or *Water Iſlands*, a good birth of 2 or 3 miles; in turning ſtand no nearer than 10 fathoms, over to the ſmall Sand, lying S. W. 4 leagues from theſe iſlands, and no nearer the iſlands than $1\frac{1}{2}$ mile; you have 20 fathoms cloſe to them, and the Sand has 4 and $4\frac{1}{2}$ fathoms on the ſhoaleſt part.

" Clear of the Water iſlands, ſtand no nearer the Malay ſhore than 12 or 14 fathoms, and ſteer from them S. E. to raiſe Poolo Peſang; *Mount Formoſa* being N. N. E. do not go under 16 or 17 fathoms; the Mount N. 4° E. a bank lies off it, 4 miles from the ſhore, with only 4 fathoms, or leſs, upon it. After you are clear of the iſlands, go no nearer the Malay ſhore than 3 leagues, and you will raiſe *Poolo Peſang*, bearing S. E. by E. or E. S. E. Steering on S. E. you will paſs it at 3 miles diſtance, and go clear of a bank on the Malay ſhore, S. E. from the iſland. E. S. E. you are in a fair channel between Poolo Peſang and the Sand to the weſtward of it, whereas Eaſt, or E. by S. you will, by ſtanding on, come into 4 fathoms, ſoft ground; ſteer Eaſt or E. by N. you muſt ſoon deepen again; but by keeping over to the ſhoal water, you have an advantage from the ſoutherly winds. The north-weſt and ſouth-weſt parts of the Sands are dangerous, hard and bad ground; but you carry 4 and $4\frac{1}{2}$ fathoms, ſoft ground, with great ſafety, over the north-eaſt part of them."

## 5° From *POOLO PESANG* through the *STRAITS* of *SINCAPORE*.

" PAST Poolo Peſang, at the diſtance of one league, you are in good water; in turning, ſtand to the iſland in 12 fathoms, and to the Sand in 10; the channel is about 2 or 3 leagues wide: Peſang E. N. E. you are clear of the ſouth-weſt end of the Sand. Thoſe experienced in this paſſage get the ſhoal water on the Sand by choice, not only to take advantage of the ſoutherly winds, but that alſo of the ſoundings, if in the night, by edging off the bank into 14 or 15 fathoms; keeping in that depth along it, the ſoundings are more regular, and the ground ſofter than on the Peſang ſide of the channel, and, therefore, a better guide.

" Keep along in theſe ſoundings, checking, if little wind, according as your ſoundings are, E. S. E. or E. by S. $\frac{1}{4}$ S. and when Peſang bears E. N. E. being clear of the Sand, ſteer S. E. or S. E. by S. for the *Little Carimon*, which you paſs at the diſtance of 4 or 5 miles, carrying near to it ſoundings between 18, 19, and 25 fathoms. In turning from Poolo Peſang, to the *Carimons*, ſtand no nearer the Malay ſhore than 14 or 15 fathoms, 2 or 3 miles off, or nearer the Carimons than 3 or 4 miles; you will then ſee the *Rabbit and Coney*. When abreaſt the Carimons, and when they bear E. S. E. ſteer right for them, keeping in about 15 or 16 fathoms; they are two ſmall rocks laying off the ſouth end of *Barn Iſland*. With this courſe you will ſoon raiſe *Tree Iſland*, called alſo *Tree Bank*, right a-head: if the wind is ſoutherly, borrow on Tree iſland into 14 fathoms, but not under;



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this is in your favour for rounding the Rabbit and Coney. If the wind be too far to the eaſtward, work under Barn iſland, then anchor and wait for the wind.

" On no account move for theſe Straits in the night, as you are liable by ſets to be horſed to the ſouthward and S. W. into dangers. When *St. John's Iſland* opens to the ſouthward of the Rabbit and Coney, ſteer away for it, and round the rocks at leſs than $\frac{1}{2}$ mile diſtance. In ſteering for St. John's, which is a ſmall woody iſland, about 4 or 5 leagues from Barn iſland, you find the ſoundings very irregular, from 20 to 35 fathoms, and on each ſide the ground rocky and dangerous; therefore ſteer right for St. John's: you will, in general, from the ſhortneſs of the diſtance, with the help of the tide, be able to puſh paſt it, without ſtopping, and under St. John's is good anchoring.

" Steer from St. John's E. by N. and you will raiſe *Pedra Branca*, E. by S. From St. John's to Pedra Branca the diſtance is about 7 or 8 leagues. With a leading wind keep in 22 fathoms, neareſt to the north ſhore of the two; on that ſhore anchor in 12 or 14, and in turning in, between St. John's and *Johore*, do not ſtand to the northward under 12 or 14 fathoms, nor beyond 25. When you are paſt Johore, and abreaſt of *Barbucet Hill*, in turning do not ſtand to the northward in leſs than 16 or 17 fathoms, nor to the ſouth ſide deeper than 20 or 22 at moſt.

" In theſe depths round *Point Romania*, and when Pedra Branca bears S. S. W. or *Bintang Hill* South, or S. $\frac{1}{2}$ W. ſteer away N. N. E. for Poolo Aore; with a leading wind paſs Pedra Branca at 2 miles diſtance; if in the night, and you are in the fair channel, ſteer E. by N. until you are ſure you have run the proper diſtance, as well as deepened your water to 24 and 25 fathoms; then ſteer N. N. E. But if you deepen too ſoon, that is, before you have run the diſtance, edge gradually to the northward; in that caſe, if you ſhoal, ſteer again immediately E. $\frac{1}{2}$ N. or Eaſt, certain that you are not without the ſhoal; for if you be within Point Romania, and ſteer N. N. W. you will go faſt from 15 to 4 fathoms, and ſoon be on ſhore; and in rounding Point Romania cloſe to, ſteer then directly for Poolo Aore, you will come upon a flat where there is only 9 or 10 fathoms.

" In the night-time by edging gradually away, if you preſerve your depth, you are ſure of being without the Sand, and ſo continue rounding to the northward till you can keep in 25 or 26 fathoms water in a N. N. E. or N. E. courſe.

" The ſhoal extends from the iſlands off Point Romania, about 6 or 7 miles to the eaſtward; the largeſt of the iſlands bearing W. S. W. you are to the northward of the ſhoal."

DIRECTIONS

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# DIRECTIONS FOR SAILING FROM WITHIN THE STRAITS OF SINCAPORE, THROUGH THE STRAITS OF DRYON, ALONG THE EASTERN ISLANDS AND THE COAST OF SUMATRA.

By Captain JOHN HALLETT, 1764.

THESE Straits, whoſe opening into the Sincapore Straits lies between *Little Carimon* and *Tree Iſland*, are bounded by the iſles of *Great Carimon* and *Sabon* on the weſt; thoſe of *Dryon* on the Eaſt; then by thoſe of *Lingen* and *Labadangong* on the ſame ſide, and the coaſt of Sumatra with its iſlands on the oppoſite part. Their extent from *Poolo Varela*, at their ſouth entrance, to the north end of Little Carimon, is above 40 leagues.

"When," ſays Captain *Hallett*, "you have rounded *Little Carimon*, keep in about 10 fathoms till you have the opening fair between *Great Carimon* and Sabon; then haul in 7 or 8 fathoms, and keep that depth on the ſtarboard ſhore; it will carry you clear of the *Middelburg Ground* (if there be ſuch a ſhoal*) being informed by a Dutch commander that it lies near the *Twins*, or *Two Brothers*, which you will open when they bear E. by N. and as you bring them to the N. E. by E. they will be ſhut in behind a bluff round iſland, which is of a reddiſh colour, near the water; then you may keep mid-channel. When you firſt open the Twins, you will ſee a ſmall low iſland, with a tree or two on it, between the Twins and the Bluff iſland; but it lies without them conſiderably, as you will perceive in running down the Straits, and this, I believe, is what they lay down for a ſhoal.

"From the aforeſaid iſlands and bearings, ſteer down the Straits, about S. by E. or S. by E. $\frac{1}{2}$ E. (having regard to the tides, which ſet ſtrong and very uncertain) you deepen your water to 12, 13, or 14 fathoms; and as you run on, you will ſee the opening between the *Two Dryons*, called the North and the South, or the Great and the Little Dryons. When the opening bears Eaſt, you bring a round iſland between you and the gap; and when it is on your larboard beam, about $\frac{3}{4}$ of a mile you will have another iſland on the ſtarboard beam, diſtant about 2 miles, and in 20 fathoms: this is the narroweſt part.

"From this opening you muſt keep neareſt the larboard ſhore; and about 3 miles from the iſland you paſſed on the Eaſt, in one with the opening, there is another bearing S. S. E. to which you muſt give about a mile birth, becauſe of the foul ground

* The exiſtence of this ſhoal has been well aſcertained, July 14th 1794, by the ſhip N. in her paſſage from Poolo Varela through the ſtraits of Dryon, as will be ſeen by the following extract of her journal.

"At 6 A. M. weighed; ſent a boat with a ſignal on the Middelburg ſhoal as a guide; paſſed the ſhoal, diſtance $\frac{1}{4}$ a mile, in one with Red Iſland, N. 75° E.

"If you wiſh to go to the weſtward of the above ſhoal, which I ſhould adviſe, as there is the beſt anchorage, keep the peak of the Small Carimon N. W. $\frac{1}{4}$ W. and the South-paſſage iſland a little open of the North-paſſage iſland. But if your intention is to proceed to the eaſtward of the ſhoal, keep the above peak N. W. $\frac{1}{4}$ N. and borrow on red iſland, having the South-paſſage iſland open to the eaſtward of North-paſſage iſland." See the following ſection.

about

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about it. As you round this iſland you will open the eaſternmoſt of the *Three Brothers*, bearing S. E. by E.

" When round this iſland haul up Eaſt, or E. by S. between *South Dryon*, on the larboard ſide, and a large iſland with high land on it, on the ſtarboard; this part is about 5 miles over, and 17 or 18 fathoms all through, till you bring the ſouthernmoſt point of the ſouth Dryon, N. E. by N. or N. N. E. and the eaſternmoſt of the Three Brothers, S. E. $\frac{1}{4}$ S. and then your water ſhoals gradually to 23 or 12 fathoms.

" Off the ſouthernmoſt point of ſouth Dryon, cloſe in ſhore, lie three ſmall iſlands and a ſhoal without them; therefore come no nearer than a mile to theſe iſlands, the weſternmoſt of which makès like a tombſtone.

" There is a paſſage between the Three Brothers, but I believe not very ſafe; therefore, if the wind and tide will permit, it is beſt to round the eaſternmoſt, and you will find regular ſoundings of 12 and 13 fathoms, mud.

" From hence ſhape your courſe for the *Calantigas*, which lie North and South, about 13 leagues (from the Three Brothers) in ſoundings from 13 to 17 fathoms, mud; here are very ſtrong tides, therefore it is beſt to anchor in the night.

" When the Calantigas bear South, 5 or 6 leagues, you have 13 fathoms, mud; and when the northernmoſt is brought to bear S. E. by S. 4 miles, you have only 9 or 7 fathoms, hard ground, which I take to be the end of the ſand, that runs off from the point of Sumatra called *Tanjong Baſſo*; for hauling in towards the iſlands, we found the ground ſometimes hard, and ſometimes ſoft; when we rounded them from 7 to 9, from 9 to 7 fathoms, moſtly hard ground, and when they bore N. N. E. $\frac{1}{4}$ N. all in one, 5 miles, we had 7 fathoms, ſoft mud, and afterwards hard ground: the ſouthernmoſt bearing N. by W. $\frac{1}{4}$ W. 2 leagues, had 9 fathoms, mud, and the iſlands all open again: when it bears N. N. W. 4 leagues, and 11 fathoms, mud, you will ſee *Poolo Berala*, or *Varela*, E. S. E. 7 or 8 leagues: the *Engliſh Pilot* lays down 17 or 18 fathoms all through, and a ſafe paſſage; whereas we found but 7 fathoms and hard ground. Therefore I would adviſe you to go to the weſtward of theſe iſlands, where you will meet with 10 fathoms, mud, all through, and no danger, keeping neareſt the iſlands on the eaſt ſide of you, to avoid the ſunken rocks, which lie about a league off the Three Brothers. There are alſo ſeveral rocks about theſe iſlands, but I believe none far off, except the above two.

" *Poolo Varela* lies S. E. about 11 or 12 leagues from the ſouthernmoſt of the Two Brothers, for which ſhape your courſe, leaving it on your larboard ſide about 3 miles, in 9 or 10 fathoms, mud; and if you find hard ground, haul in for *Tanjong Bou* (or Hog's Point) but do not go under 5 fathoms water, there being off it a very hard ſand and ſteep-to. When you bring the ſaid point Weſt, haul into 7 fathoms, and never go out of that depth, till you round Batacarang point, where you enter the Straits of Banca."

DIRECTIONS

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## DIRECTIONS FOR THE STRAITS OF DRYON, COMING FROM THE SOUTHWARD.

### From M. MOORE.

"POOLO VARELA, or *Varella*, at the South entrance, is of a moderate height, and may be ſeen 6 leagues off from the deck: it lies W. $\frac{3}{4}$ S. from Poolo Taya. You find freſh water there, and can anchor on the ſouth-weſt ſide in 10 fathoms. This iſle muſt be paſſed to the * ſouthward, as well as all the iſlands to the northward of it, among thoſe of *Lingen*, are almoſt unknown.

"Leaving Poolo Varela, to enter the Straits, you ſteer up to the N. W. by W. for the Sumatra ſhore, which, being kept on board, in a depth of 11 and 12 fathoms, muddy ground, you will ſoon get ſight of the CALANTIGAS. Theſe are five iſlands, moderately high, ſeen on a clear day at 6 or 7 leagues diſtance, and which lie about 35 miles N. W. of Varela; three of them appear more conſiderable than the two others; their extent is about 7 miles, and they all lie in one, in a N. N. E. direction; you have 7 fathoms water cloſe to them.

"You may paſs to the weſtward or eaſtward of the Calantigas: but the weſtern channel is recommended in general: in going through it you give ſouth Calantiga a birth of $2\frac{1}{2}$ miles, on account of two ſmall rocks above water, and of the ſize of a boat, which lie off its ſouth end in a S. S. W. direction; and in general you are not to come nearer the iſland than that diſtance: you have 11, 12, and 10 fathoms, mud, in the channel.

"On the eaſt ſide of the Calantigas you may round the northern iſland in 6 fathoms, one mile from ſhore, and will carry from 9 to 7, muddy ground, all along. This iſland can be approached without danger, within 1 or $1\frac{1}{2}$ mile. In the paſſage you are not to bring ſouth Calantiga more weſterly than N. W. by N. till falſe Varela is bearing to the South of E. by E. and then you avoid a rock above water, 9 good miles from the Calantigas, which bears S. E. from ſouth Calantiga, W. $\frac{3}{4}$ N. from falſe Varela, and has 10 fathoms within a cable's length. *Falſe Varela* is a low iſland to the N. N. W. $\frac{3}{4}$ W. 5 leagues from Varela, for which it is often taken. This eaſtern channel is formed by the range of iſlands, running in a N. W. direction from True Varela, the northernmoſt of which bears N. by E. nearly from the Calantigas, about 15 miles; the range lies on the eaſt ſide of *Lingen*, but all its iſlands are lower than Lingen.

"Having paſſed the Calantigas, you ſhould get up on the Sumatra ſhore, and keep in 14 and 16 fathoms; but on no account go into a greater depth on the eaſtern ſide than 20 fathoms, particularly as you advance to the northward, all that ſide being foul, with great overfalls, and conſequently bad anchorage. I think a north courſe the beſt from the Calantigas, altering it to the weſtward, when you deepen, and to the eaſtward when you ſhoal: the beſt ſoundings to keep in are, from 18 fathoms on the eaſt, to 7 fathoms on the weſt, or Sumatra ſhore. Such a courſe will carry you to the Brothers.

* I have ſince learned that the *Thomas* country-ſhip, having paſſed to the northward of Varela, found it a good and ſafe paſſage, and wider than that to the ſouthward.

"THE

" THE BROTHERS are distant about 55 miles from the Calantigas: there are three of them which lie in a North and South direction, about 12 miles in extent: the *South Brother* the highest and largest, but of small extent, and remarkable by a white rock on the north-east side. It may be seen at 6 leagues distance, when it is on with the peak of Dryon, which is a good mark for it; that peak can be easily known, as it is the only high land on the western side of Lingen. The *Middle Brother* is not so high as the south one, and lies about 3 miles South from it. When you are within 5 miles of the south Brother, you will perceive the *North Brother* rising under the Dryon shore: this is smaller and lower than the other two; and the space between it and the middle Brother is by far the widest; you may pass the middle Brother, on the east side, within 2 miles.

" The north Brother has a reef running from its south-east end in a S. E. direction 2 miles, which reef has a rock above water on its extremity: you must generally give this islot a birth of 3 miles to the eastward, when you pass between it and Dryon.

" Having got the sight of the south Brother, which is the first island you meet with in the fair way from the Calantigas, and which bears N. by W. when in one with the peak of Dryon, steer for it till you see the middle Brother; but do not bring this to the westward of the peak until you are well up with the South one, for fear of the eastern reef. You may pass either to the westward of the South, or to the eastward of the north Brother: but we passed between the middle and the north Brother, and had 11, 13, and 17 fathoms, regular soundings, although some people say they are connected by a reef.

" We anchored in 17 fathoms, with the following bearings, *viz.* South Brother S. 28° E. middle ditto S. E. north ditto 35° E. Reef from ditto N. 75° E. distant from the north Brother 3 or $3\frac{1}{2}$ miles. Peak of Lingen, open to the north of the middle Brother, S. 43 E. The two Passage islands to the northward, in the Straits, N. 32° W. to N. 43° W. north-west part of Dryon, N. 38° W.

" Whichever way you pass off the Brothers, it is best to get in with the western Shore, and to keep in 10 and 9 fathoms till you have advanced some way to the northward, when you had better keep in 7 fathoms, to avoid the *Middelburg Shoal.*

" Leaving the Brothers you will see the two *Passage Islands*, which bear N. W. of the middle Brother, and must be left on your starboard side. There is a good channel on the eastern side, but as the Middelburg Shoal lies in the fair way, although it is recommended to pass it to the westward: in doing so you would have to haul athwart the tide, to get up with the west, or Sabon shore; and, in case of little wind, you might be set upon it; therefore it is best to pass to the West of the Passage islands.

" By the time you get their length you descry *Red Island*, which lies off the north-west part of Dryon, and can be known by two islots lying close to it; they call them the *Twins*, and they are a mark for the Middelburg Shoal.

" To pass to the westward of that shoal, keep along the Sabon shore in 7 fathoms, and be sure you do not deepen your water to more than 9, as in that stream you are close to it. You may stand toward the Sabon shore into what depth you please, and have soft muddy ground. When the shoal is on with Red Island, it bears E. 17° N. and the Twins a cable's length

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length open to the North of Red iſland. When Sabon peak bears N. 75° W. it is on with the ſhoal, or in a line with it. I went to the eaſtward of the ſhoal, found regular ſoundings, good bottom, and had, when abreaſt of it, 17 fathoms. I have had, in paſſing the ſame, from 13, 16, to 17, mud. The weſtern channel is about 4 miles in width, the eaſtern one about 6. I ſee then no difficulty in paſſing to the eaſtward of the ſhoal; only you muſt border on it, and give Red iſland the greateſt birth; though I have been ſince informed you may paſs it very cloſe, without danger: it has, however, a reef of ſtraggling rocks, which lie off its north-weſt end, in a N. W. direction, and ſtretch about 2¼ miles.

" Middelburg Shoal may be ſeen off the deck at one-third tide of the ebb, diſtance about 5 miles: and at high water, with a good look out, you can deſcry it far enough to clear it. It lies N. W. and S. E. about 1¼ mile in extent. The tides here are very rapid, the flood ſetting to the ſouthward, and the ebb to the northward; it flows, full and change, about 5 o'clock.

" The Sabon or weſtern ſhore is low, and has only one peak on it, which is the mark for the ſhoal; it cannot be miſtaken, being the only peak on that ſide, with thoſe of Great and Little Carimon, to the northward of it, which are high. To the whole weſtern ſhore, from the Brothers, they give the name of *Sabon Shore*, although it does not extend ſo far to the ſouthward, and is formed by a multitude of ſmall iſlands, which, at any diſtance, ſeem to compoſe a ſingle iſland, and can hardly be diſtinguiſhed from Sabon, the main iſland.

" The Carimons lie at the north-weſt of the Straits of Dryon; they conſiſt of the *Great Carimon*, which ſhews two peaks, and the *Little*, or *Eaſtern Carimon*, which has but one—all very high. When the peak of Little Carimon bears N. 35° W. it is on with the Middelburg ſhoal: but this is a long mark, not given to ſteer by, but only to know when in you are in its neighbourhood."

## THE WEST COAST OF SUMATRA.

THE general direction of the weſt coaſt of Sumatra is nearly N. W. and S. E. The Equator divides it in almoſt equal parts, the one extremity (King's Point) being in 5° 49′ latitude North, the other (Flat Point) in 6° latitude South: the whole comprehends an extent of about 300 leagues, and lies expoſed to the great Indian Ocean.

On this coaſt the S. E. Monſoon, or dry ſeaſon, begins about May, and ſlackens in September: the N. W. Monſoon begins about November, and the hard rains ceaſe about March. In this Monſoon the ſtorms of thunder are extremely violent; the forked lightning ſhoots in all directions, and the whole ſky ſeems on fire, whilſt the ground is agitated in a degree little inferior to the motion of an earthquake. In the S. E. Monſoon the lightning is more conſtant, but the coruſcations are leſs fierce or bright, and the thunder is ſcarcely audible.

The Monſoons, for the moſt part, commence and leave off gradually there; the months of April and May, October and November. It muſt be obſerved that the N. E. Monſoon is changed on this coaſt to N. W. or W. N. W. by the influence of the land. During the



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S. E. Monſoon the wind is found to blow there, between that point and S. S. W. Whilſt the Sun continues near the Equator, the winds are variable, nor is their direction fixed till he has advanced ſeveral degrees towards the Tropic; and this is the cauſe of the Monſoons uſually ſetting in about May and November, inſtead of the equinoctial months.

The ſea-breeze uſually ſets in on this coaſt after an hour or two of calm, about ten in the forenoon, and continues till near ſix in the evening; about ſeven the land-breeze comes off, and prevails through the night, until towards eight in the morning, when it uſually dies away.

The ſurfs, very violent all along the weſt coaſt of Sumatra, are, in ſome places, uſually greater at high, and in others at low water; but it ſeems they are more uniformly impetuous, during the ſpring tides, and the higheſt are experienced in the S. E. Monſoon*.

The

* Navigators have given the name of SURF to that peculiar ſwell and breaking of the ſea upon the ſhore, ſo frequently mentioned in the foregoing ſheets; but they have not hitherto, any more than writers, much adverted to its phænomena. Mr. *Marſden* (*Hiſtory of Sumatra, p. 28, and Seq.*) is the firſt who has explained them, as well as their cauſe, in a manner not leſs ingenious than ſatisfactory: we have then no doubt but ſuch an explanation muſt be agreeable, if not inſtructive, to all navigators.

"The Surf," ſays M. *Marſden*, "forms ſometimes but a ſingle range along the ſhore. At other times there is a ſucceſſion of two, three, four or more, behind each other, extending perhaps half a mile out to ſea. The number of ranges is generally in proportion to the height and violence of the Surf.

"The Surf begins to aſſume its form at ſome diſtance from the place where it breaks, gradually accumulating as it moves forward, till it gains a height, in common from fifteen to twenty feet, when it overhangs at top, and falls, like a caſcade, nearly perpendicular, involving itſelf as it deſcends. The noiſe made by the fall is prodigious, and, during the ſtillneſs of the night, may be heard many miles up the country.

"Though in the riſing and formation of the Surf, the water ſeems to have a quick progreſſive motion towards the land, yet a light body on the ſurface is not carried forward; but, on the contrary, if the tide is ebbing, will recede from the ſhore; from which it would follow, that the motion is only propagated, like ſound in air, and not the maſs of air protruded. A ſimilar ſpecies of motion is obſerved, on ſhaking at one end, a long cord, moderately ſlack, which is expreſſed by the word undulation. I have ſometimes remarked, however, that a body which ſinks deep, and takes hold of the water, will move towards ſhore with the courſe of the Surf, as is perceptible in a boat landing, which ſhoots ſwiftly forward on the top of the ſwell, though, probably, it is aided by its own weight in the deſcent, after having reached the ſummit, and to that owes its velocity.

"Countries where the Surf prevails, require boats of a particular conſtruction, and the art of managing them demands the experience of a man's life. All European boats are, more or leſs, unfit, and ſeldom fail to occaſion the ſacrifice of the people on board them, in the imprudent attempts that are ſometimes made to land with them on the open coaſt.

"The force of the Surf is extremely great. I have known it to overſet a country-veſſel, in ſuch a manner, that the top of the maſt has ſtuck in the ſand, and the lower end made its appearance through her bottom. Pieces of cloth have been taken from a wreck, twiſted and rent by its involved motion.

"The winds have doubtleſs a ſtrong relation to the Surfs. If the air was in all places of equal denſity, and not liable to any motion, I ſuppoſe the water would alſo remain perfectly at reſt, and its ſurface even, abſtracting from the general courſe of the tides, and the partial irregularities occaſioned by the influx of rivers. The current of the air impels the water, and cauſes a ſwell, which is the regular riſing and ſubſiding of the waves. This riſe and fall is ſimilar to the vibrations of a pendulum, and ſubject to like laws. When a wave is at its height, it deſcends by the force of gravity, and the momentum acquired in deſcending, impels the neighbouring particles, which, in their turn, riſe, and impel others, and this forms a ſucceſſion of waves. This is the caſe in the open ſea; but when the ſwell approaches the ſhore, and the depth of water is not in proportion to the ſize of the ſwell, the ſubſiding wave, inſtead of preſſing on a body of water, which might riſe in equal quantity, preſſes on the ground, whoſe re-action cauſes it to ruſh on in that manner, which we call a *Surf*.

"That the Surfs are not, like common waves, the immediate effect of the wind, is evident from this, that the higheſt and moſt violent often happen when there is the leaſt wind, and *vice verſa*. And ſometimes the Surfs will continue with an equal degree of violence during a variety of weather. On the Weſt coaſt of Sumatra, the higheſt are experienced during the S. E

Monſoon

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The ſpring-tides on the weſt coaſt of Sumatra are eſtimated to riſe in general no more than 4 feet. It is always high water when the Moon is in the horizon, and conſequently at 6 o'clock nearly, on the days of conjunction and oppoſition, throughout the year, in parts not far remote from the Equator*.

## EXTRACT OF THE SOMERSET's JOURNAL, FROM THE COCOS ISLANDS TO BENCOOLEN, ALONG THE WEST COAST OF SUMATRA,

### WITH SOME ADDITIONAL REMARKS.

NOVEMBER, 1739, they met with ſtrong weſterly currents, and made 9° 8′ E. M. diſtance, from Point Palmiras to the iſlands Cocos, both low and covered with trees; the northernmoſt is by far the ſmalleſt. Variation off theſe iſlands 0° 13′ Eaſt.

VERKENS, or *Hog Iſland*, on the Sumatra Coaſt, is full of hills of a moderate height, which are all covered with wood; there ſeems to be plain ground in it, and on the ſide that faces Sumatra, there are three very deep bays. They went within the iſland about 5 leagues.

" HOG or *Swines Iſland*," according to Captain *Sampſon Hall*, " runs nearly E. by S. and

Monſoon, which is never attended with ſuch gales of wind as the N. W. The motion of the Surf is not obſerved to follow the courſe of the wind, but often the contrary: and when it blows hard from the land, the ſpray of the ſea may be ſeen to fly in a direction oppoſite to the body of it, though the wind has been for many hours in the ſame point.

" The Surfs, ſo general in the tropic latitudes, are, upon the moſt probable hypotheſis I have been able to form, after long obſervation, and much thought and enquiry, the conſequence of the trade or perpetual winds, which prevail at a diſtance from ſhore, between the parallels of 30° North and South, whoſe uniform and invariable action cauſes a long and conſtant ſwell, that exiſts, even in the calmeſt weather, about the Line, towards which its direction tends from either ſide. This ſwell or libration of the ſea, is ſo prodigiouſly long, and the ſenſible effect of its height, of courſe, ſo much diminiſhed, that it is not often attended to; the gradual ſlope engroſſing almoſt the whole horizon, when the eye is not much elevated above its ſurface; but perſons who have ſailed in thoſe parts may recollect that, even when the ſea is apparently the moſt ſtill and level, a boat or other object, at a diſtance from the ſhip, will be hidden from the ſight of one looking towards it from the lower deck, for the ſpace of minutes together. This ſwell, when a ſquall happens, or the wind freſhens up, will, for the time, have other ſubſidiary waves on the extent of its ſurface, breaking often in a direction contrary to it, and which will again ſubſide as a calm returns, without having produced on it any perceptible effect. Sumatra, though not continually expoſed to the S. E. trade-wind, is not ſo diſtant, but that its influence may be preſumed to extend to it, and accordingly at *Poolo Peſang*, near the ſouthern extremity of the iſland, a conſtant ſoutherly ſea is obſerved, even after a hard N. W. wind. This inceſſant and powerful ſwell, rolling in from an ocean, open even to the Pole, ſeems an agent adequate to the prodigious effects produced on the coaſt; whilſt its very ſize contributes to its being overlooked. It reconciles almoſt all the difficulties which the Phænomena ſeem to preſent, and in particular it accounts for the decreaſe of the Surf during the N. W. Monſoon, the local wind then counteracting the operation of the general one; and it is corroborated by an obſervation I have made, that the Surfs on the Sumatran coaſt ever begin to break at their ſouthern extreme, the motion of the ſwell not being perpendicular to the direction of the ſhore. This manner of explaining their origin ſeems to carry much reaſon with it; but there occurs to me an objection, which I cannot get over, and which a regard to truth obliges me to ſtate. The trade-winds are remarkably ſteady and uniform, and the ſwell generated by them is the ſame. The Surfs are much the reverſe, ſeldom perſevering for two days in the ſame degree of violence: often mountains high in the morning, and nearly ſubſided by night. How comes an uniform cauſe to produce effects ſo unſteady, unleſs by the intervention of ſecondary cauſes, whoſe nature and operations we are unacquainted with."

* Owing to this uniformity, it becomes an eaſy matter for the natives to aſcertain the height of the tide, at any hour that the moon is viſible. Whilſt ſhe appears to aſcend, the water falls, and *vice verſa*, the loweſt of the ebb happening when ſhe is in her meridian. *Marſden's Hiſtory of Sumatra, p.* 33.



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W. by N. it is an iſland 15 or 16 leagues long, and about 3 or 4 broad, with ſeveral hills of a moderate height, but much higher in the centre of the iſland than at either end: there are two ſmall flat iſlands a little way from the ſouth end. About 7 or 8 leagues, N. E. nearly from its north end, lies the northernmoſt of the two iſlands Cocos."

Poolo Baniack, or *Panjack*, to the eaſtward of Hog iſland, has a high peak like a ſugar loaf. They got ſoundings in latitude 2° 30′ North, about 6 leagues off ſhore, from 35 and 40 to 45 and 50 fathoms; the current all along ſetting to the N. W. The peak of Baniack S. ½ W. 4 leagues, 17 or 18 fathoms: they ſent their yawl to ſound inſhore, when Poolo Baniack and two other ſmall iſlands bore from S. S. W. to S. W. ½ S. 5 leagues; found no leſs than 17 fathoms, within 3 miles of the ſhore, but then had 6½ on a ſmall knowl, then 17, and ſo on for ſome diſtance. The peak of Baniack S. W. by W. 7 leagues, they ſent their pinnace to ſound for a rock, ſaid by the pilot to have only 2 fathoms water; ſhe found upon it 3 fathoms, except upon a ſmall table which had but 2. When upon this rock ſhe was 2 miles off ſhore, the peak bearing W. S. W. and a ſtump of a tree, which ſeemed to be laid on the beach on purpoſe, E. N. E. ſo that the bearings laid down by the pilot, though pretty near, are not quite exact.

"There are," ſays Captain *Hall*, "ſeveral iſlands about the ſouth end of Poolo Baniack, the two ſouthmoſt of which are very remarkable, being both round iſlands, and nearly of the ſame appearance, diſtant from each other about 6 miles. We came between them in January 1784, in the *Royal Biſhop*, rather nearer to the ſouth iſland, and obſerved while betwixt them, the latitude of 2° 1′ North. In paſſing them the ſoundings were irregular from 38 to 33, 25, 21, 19, 23, 28, and 33 fathoms."

All the way from Cape Sitoe, or *Siotoe*, for above 10 leagues along the coaſt to the northward, is low land, with hills a good way up the country: the ſoundings are regular from 50 to 10 fathoms, which bring you within ½ a league of the ſhore; ſo that coming from the northward, to avoid the ſunken rock mentioned above, the ſafeſt courſe is to keep the ſhore cloſe on board. You may go within ½ mile, till you bring the peak upon Poolo Panjack to bear W. by S. and then you are paſt it: and, in caſe of hazy weather, when abreaſt of Cape Sitoe, ſounding, ſtanding from Sumatra to the rock, 13 fathoms is the deepeſt. When you have 10 fathoms, ſtand back to the main, for the next caſt the water ſhoals to 9, then to 4, and from that to the rock.

From Cape Sitoe, Point Sinkell appears like an iſland, and both form a deep bay.—They ſaw from the deck the breakers off Point Sinkell, which reach but a ſmall diſtance from the ſhore; they made this point to lie in 2° 14′ north latitude.

*Dunder Iſland* is low and full of trees; when it bore S. E. *Poolo Mouſe* E. S. E. there is a low ſandy iſland, very little raiſed above the water, and not ¼ of a mile in length, bearing from Dunder N. N. E. diſtant about 2 miles; and then it was in a line with Poolo Mouſe. There is a ſmall iſland before Broons, eaſtward, which is called *Keyſers Iſland:* from Point Sinkell to this iſland is a large bay, and low land.

In coming from the northward they kept Dunder and the low ſandy iſland to the weſtward, the ſoundings 12, 9, 10, 16, 21, 20, 22, 24, 26, 27, 28, 29, and 30 fathoms, a ſafe courſe/

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courſe. The beſt anchoring off BANA is the iſland bearing N. W. by W. of you about 2 miles; within it is a reef that runs quite to the ſhore, with a low tree on it.

From BARROS they ſaw the famous fall of water on the north-weſt end of POOLO MOUSEL, or MUSSELAR, which bore S. by W. 5 leagues; it comes from the middle of a high mountain: it is ſaid to be above 30 or 40 yards broad, and falls almoſt perpendicular above 300 yards.—Latitude of the ſmall iſland 1° 56′ North. In the month of December ſtrong ſoutherly currents.

*Mount Ophir* E. ½ N. brings you open of Ayer Bonghi River (a place for gold). The ſhoal of Gaffer is foul and full of rocks, you muſt go round it.

Off the PRIAMAN ISLANDS, is *Poolo Peſang*; came round it from the ſouthward in 5 fathoms water, the ſouthernmoſt iſland of Priaman E. ½ N. diſtance off ſhore 3 leagues, no ground at 95 fathoms. Poolo Peſang W. N. W. Padang flag-ſtaff N. N. E. in 5 fathoms. On the bar 2½ fathoms.

From Barros to PADANG they had good and regular ſoundings, and anchored in Padang road, the ſouthernmoſt part of Peſang iſland N. W. by N. diſt. ½ a mile: Padang head N. ½ E. Poolo Rebel or Roba S. ½ W. in 13 fathoms.

From Padang they went through the Inner Channel, without *Poolo Rebel*, and between that and the Great Marra; at which time *Poolo Marra* bore W. N. W. diſtant 1 mile.—When Poolo Auro bears S. by W. ½ W. diſtant 2 miles, Poolo Tello bears S. W. by S. and Poolo Capas E. ½ S. *Poolo Tello* is ſurrounded with breakers, and a ſpit runs out from the north-weſt point about ¼ of a mile, and alſo another from the ſouth-eaſt point about the ſame diſtance; it is full of trees, and they had 25 fathoms, within a mile of it. They anchored off Moco-moco in 36 fathoms, the flag-ſtaff N. E. ½ E. 3 leagues diſtant.

The breakers off Aypour appeared 8 or 9 miles out north-eaſterly; they were in 9½ fathoms, but ſtood off to the weſtward, and deepened their water gradually to 23 fathoms, the ground for the moſt part dark and hard ſand, and as they deepened the more oozy.

They were from November 26th, that they made the iſlands Cocos, to the 13th of January, before they arrived at Bencoolen, and had moſtly land and ſea-breezes.

## INSTRUCTIONS CONCERNING BENCOOLEN ROAD, POOLO BAY, AND RAT ISLAND.—CAUTION AGAINST THE WATER IN POOLO BAY.

By Captain JOSEPH HUDDART.

"FORT MARLBOROUGH, on the point of land called *Oojong Carrang*, lies in 3° 45′ ſouth latitude and 103° * 6′ Eaſt of London, by lunar obſervation. THE ROAD is ſaid to be all clean; but anchoring with the *York*, Auguſt 21ſt, 1774, the flag-ſtaff upon the fort bearing

* Preparatory to an obſervation of the tranſit of the planet Venus over the Sun's diſc, in June 1769, M. *Robert Nairne*, determined the longitude of *Fort Marlborough*, by eclipſes of Jupiter ſatellites, to be 101° 42′ 45″ Eaſt of London; which was afterwards corrected by the Aſtronomer Royal to 102° 0′.

E. by N.

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E. by N. ¼ N. Poolo Point S. S. E. the Sugar-loaf hill N. E. ¼ N. in 10½ fathoms, diſtant from the fort about 3 miles; on the 29th parted the beſt bower cable, the weather ſeaſonable, except on the 26th, when we had it blowing freſh from the N. W. with a large ſwell. In heaving in the cables, we found ſeveral pieces of ſmall ſharp rocks (one of which, I ſuppoſe, might weigh half a pound) amongſt the looſe yams of the cable, which proved it to have been cut by foul ground: but afterwards always anchored in 12 fathoms or upwards, Poolo point bearing about S. E. by S. the flag-ſtaff E. N. E. Rat iſland S. W. by S. and found clear ground.

" In this road, the ſea ſometimes came in ſo heavy, that on account of the veſſel's rolling, we were obliged to laſh the ſeats in the ſteerage; and it is certainly preferable, between the months of September and March, (when the N. W. winds prevail ſo ſtrong upon this coaſt) for thoſe who do not chooſe the baſon in Rat iſland or Poolo bay, to anchor within a mile to the eaſtward of Rat iſland, in about 15 fathoms; if they are not entirely ſheltered from the N. W. winds, yet the ſhoal to the northward of Rat iſland muſt leſſen the ſea; and in ſeaſonable weather, the boats, to and from Fort Marlborough, may do the ſame duty, as if the ſhip were in the road, where they frequently anchor as above; for a ſailing boat is confined to one trip in 24 hours, by the land and ſea-breezes in ſeaſonable weather; beſides, in caſe of parting your cables, you may ſafely recover Poolo bay, with little or no canvaſs ſpread, no gales affecting you, but thoſe from the north-weſtward.

" In coming into this Road, you may leave Rat iſland on either ſide; but if from the ſouthward, when abreaſt of Buffalo point, keep within 1 mile ½ or 2 miles of the ſhore, for about a league. W. S. W. from Poolo point, and S. S. E. from Rat iſland, lies a ſhoal upon which the ſea ſometimes breaks; but when abreaſt of Poolo point, you may ſteer N. N. W. for the road. You may alſo go to the weſtward of this ſhoal, between it and Rat iſland. But if you intend to go to the northward of Rat iſland, you muſt give it a birth of 2 miles, for a reef runs off, to the northward of the iſland, whereon is not above 4 or 5 fathoms water. There are no other ſhoals, within the road, except thoſe, and the black rocks, which are above water, and bear from Fort Marlborough S. ½ E. from Poolo point N. ½ W. and from Rat iſland W. ¾ N. about 2 leagues.

" Poolo Bay is an excellent harbour, but ſurrounded with ſwamps, which render it very unhealthy. In coming in you may take Sandy point, cloſe on board at low water, and, if high water, a cable's length is a ſufficient birth. The whole bay is clean, (except a ſpot, where are coral rocks) with even ſoundings; the beſt laying is where ſandy point bears North, diſtant from the Company's Godowns between ¼ and ½ a mile. In this bay, the ſpring tides riſe about 5 feet: it is well ſtored with turtle, and different kinds of fiſh, and there is a well of excellent water on the ſouth ſide,

" Rat Island is ſurrounded by a ſhoal, dry at low water, and has on the north-eaſt ſide a gut with 5, 7, to 3 fathoms, which now all the country ſhips lay in, while taking in, or diſcharging goods at Fort Marlborough, or undergoing a repair. With a little attention paid to the mooring of ſhips, it appears to be an excellent baſon; for if in a hard gale of north-weſterly winds, by which (though no ſea can affect a ſhip, yet a ſtrong current may),

a veſſel

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a veſſel is forced over the ſhoal at high water, (the tide riſing about 3 feet) ſhe parts an old junk or hawſer, and drives again to the ſouth-eaſt ſide, this baſon is ſo ſteep-to, and compoſed of ſo ſoft coral, that ſhe never receives any damage. They are running a pier, from the head, to extend along the north-weſt ſide, in order to break off this current, and it might be made as ſecure as a dock. Should an European ſhip expect to be long detained at Bencoolen, it would certainly be adviſable to moor in this baſon, even in its preſent ſituation; the boats being able to make a trip each day, with the land and ſea-breezes, and no more can be done in the road, where often the ſea runs high, and the goods are unſafe in the boats along ſide; for ſometimes the North-weſters give ſo ſhort a warning, that boats with half loading are obliged to put off for Poolo Bay."

An important obſervation, made and communicated by Captain *Sampſon Hall*, a gentleman to whom this book is much indebted, will conclude this article. " The water in Poolo Bay," ſays the Captain, " has always been conſidered as very pernicious; and part of the crew of the *Royal Biſhop* found it ſo, in 1784. That ſhip, then moored in Iſland baſon, having her mizen-maſt ſprung, ſent the long-boat to Poolo bay, to get the main-maſt of the *Myrtle* tranſport out, which ſhip had been condemned there in her paſſage from Bengal to England. The third mate, boatſwain, quarter-maſter, &c. in all, 20 perſons were in the long-boat, with three days' proviſions, and three butts of good water; they were cautioned not to drink the water of Poolo bay; but ſuch is the heedleſſneſs of the ſailors, that many of them, when on ſhore, would not take the trouble of going to the boat for water, but drank that of the bay. The conſequence was fatal to many of them; the third mate was never off his bed during the paſſage home; and the boatſwain, with one quarter-maſter, and eight men, died during that paſſage."

## DIRECTIONS FOR SAILING FROM BENCOOLEN TO THE SOUTHWARD.

By Captain JOSEPH HUDDART.

" TO the weſtward of Poolo Bay is POOLO POINT, to the ſouthward of which, about $2\frac{1}{2}$ miles, is a round bluff point called BUFFALO POINT, which may be ſeen in Bencoolen road: there is good anchoring for ſhipping off it, as to the ground and depth of water, but open to the ſea, from 7 fathoms to what depth you pleaſe. There is a Dooſoon, or inhabited village, but a very bad bar, which makes it not uſed by boats.

From Buffalo Point to MANNA POINT, is about 50 miles; from thence 33 to the bay and factory of CAWOOR: about 25 miles S. E. by E. from Cawoor, lies POOLO PESANG; and near the ſame diſtance S. S. E. $\frac{1}{2}$ E. the bay and factory of BENCOONAT. FORTUNE ISLAND is from Bencoonat, about 24 miles S. S. E. This iſland lies N. W. by N. and S. E. by S. about 7 miles from flat point, it is low and full of trees: a ſhip may ride with ſafety about 1 mile to the Eaſt of it, as well as in Billimbing Bay on the oppoſite ſhore.

" It has been a very erroneous opinion, that there are no ſoundings to the ſouthward of Buffalo

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Buffalo point, for we found this voyage good and regular ſoundings, between Manna and this point, from 12 to 30, 40, 50, 60, and 70 fathoms, ſandy ground, and where you may anchor, if occaſion requires; but when paſt Manna point, to the S. E. between that and Poolo Peſang, we could get no ground till near Fortune iſland (little): and there you loſe ſoundings. *Note*; there is generally a great ſwell on ſhore, all along the coaſt.

## DIRECTIONS FOR SAILING TO BENCOOLEN AND ALONG THE WEST COAST OF SUMATRA, COMING FROM THE SOUTHWARD.

By Captain GEORGE RICHARDSON, 1771.

WE have already taken notice of the paſſage to Bencoolen in the S. E. Monſoon. Captain *George Richardſon*, whoſe directions have been there tranſcribed, has added the following ones for ſhips bound from Batavia to Bencoolen in the N. W. Monſoon, *viz.* from September to March. "They ought," ſays this officer, "to make the Sumatra coaſt as ſoon as poſſible, and endeavour to work up along ſhore, with the ſea and land-breezes: you have good anchorage till you paſs Crockatore (Cracatoa); if you find any difficulty in working up along ſhore, you may ſtand to the S. W. till you have got ſufficient weſting, ſo as to bring you into Bencoolen road on the larboard tacks. Small ſhips generally keep along ſhore, taking ſhelter under Fortune iſland (Little) or Poolo Peſang, till they get into ſoundings a little to the ſouthward of Manna, when they are ſure of their paſſage, by making the moſt of the land-winds. In coaſting along keep within 30, and do not come nearer than 10 fathoms: off Allas there is a long ſhoal, 7 fathoms cloſe to it, which may be eaſily ſeen by the breakers.

"In going into MARLBOROUGH ROAD you ought to keep near Buffalo point in 16 fathoms: you anchor in the road in 10 fathoms, bringing *Rat Iſland* to bear South.

"On this coaſt, you ought not to moor, becauſe your cables will be cut in one night, in caſe of a foul hawze, owing to the ſea, and the pitching of the ſhip; but it is proper to carry a kedge anchor, with two or three hawſers upon it to veer and heave in, in caſe of its bearing too much ſtrain (which will be ſeldom the caſe) from the land-winds; the kedge ought to bear N. E. from the bower anchor; by this means the bower always rides you from the N. W. and S. E. winds; theſe are the only winds which blow hard upon this coaſt, particularly the N. W.

"I would recommend it to all Europe-ſhips, by no means to go into POOLO BAY, unleſs they loſe their anchors, or want to careen, as they are certain of loſing a number of men, eſpecially in the S. E. Monſoon.

"On the Weſt coaſt of Sumatra, during the N. W. Monſoon you have often S. E. winds, and during the S. E. Monſoon N. W. winds; ſo that at any time of the year a paſſage may be

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be got from Batavia to Bencoolen, and from Bencoolen to Batavia, with a little patience and perſeverance."

A few general obſervations concerning the winds may be added to thoſe given by Captain *Richardſon*.

On the weſt coaſt of Sumatra the winds from April to October blow generally from the S. E. From October to April the N. W. winds are blowing, and theſe are very hard.

In the S. E. Monſoon the wind ſometimes blows ſo ſtrong that ſhips cannot work to the ſouthward, but have been obliged to return to Marlborough after a fruitleſs attempt for ſeveral weeks; ſometimes in this Monſoon, about the change of the Moon, the North-weſters blow hard for a few days: however in general it is not very difficult to get to the ſouthward in the S. E. Monſoon; nor impracticable to work to the northward againſt the N. W. Monſoon.—*Note*, that theſe obſervations refer entirely to ſouth latitude.

## NAUTICAL INSTRUCTIONS

### FOR THE WEST COAST OF SUMATRA, COMING FROM THE SOUTHWARD.

Extracted chiefly from thoſe of Commodore JOHN WATSON, in the Ship REVENGE, 1770.

### 1° FROM *FLAT POINT* TO *BENCOOLEN*.

WHEN about 3 miles from a *Flat Point* on the Sumatra ſhore, bearing N. by E. nearly, Fortune iſland (Little) S. E. ½ S. about 4 leagues diſtant, you have ſoundings from 48 to 27 fathoms, ſandy ground; and in a bay oppoſite is BINNANG, the firſt Engliſh ſettlement on this coaſt under the reſident of Croe: theſe ſoundings are mentioned as a ſhip working into the Straits (of Sunda) might ſtop here in a calm or little wind. The particular bearings for this anchorage are Fortune iſland S. E. ½ S. 10 miles, the Sugar-loaf N. E. ¼ E. a low point north-eaſterly.

You have ſoundings all along ſhore at about 6 miles diſtance, and between Flat point and FORTUNE ISLAND, which bears from it about N. W. 4 leagues. It is low and very woody, and about a mile in diameter. As you ſail to the N. W. the land is low along ſhore, and within 2 miles of the Flat point before mentioned you have 28 fathoms, ſandy ground.

POOLO PESANG, or PISANG, is a little iſland, which chiefly conſiſts of a bed of rock-cryſtal; it lies at the foot of Mount Poogong, a very remarkable mountain, its latitude 5° 6′ South; you may ride ſafely under that iſland from a N. W. wind. It is ſaid there is a paſſage between it and the main, and that a Dutch Indiaman came in that way, keeping cloſe to the main. The water is very ſhoal and foul a little to the northward, having ſometimes 4, then 3 fathoms in ſpots of coral rocks which you can plainly ſee. This continues till you open a ſmall rock (on which ſtands a ſingle cocoa-nut tree) with the iſland, when you have 10 fathoms, and deepen quickly to 18, having that depth N. W. from the iſland. There is a range of rocks, a little to the northward, midway between the iſland and the main, about one mile from each; the ſea generally breaks high upon them: 18 fathoms are found cloſe



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to the ſouthward of them, 21 to the weſtward, and 12 to the northward, the laſt foul ground. There is a bank in the middle of the channel, the breakers bearing about South or S. by E. on which you have only 2 fathoms, coral rocks; if there is any channel, it muſt be between this bank and the main.

You have regular ſoundings all round the bay, at about $\frac{1}{4}$ mile from the ſhore, depth 35 fathoms, and in the bottom of the bay, they are found at a greater diſtance. You will ſee a rock at this bottom which appears as an iſland; it is called *Sillaloo*, or *Salallee*; about 2 cables' length off it, is foul ground 10 fathoms, and then ſandy ſoundings to 54 fathoms, about $\frac{1}{4}$ of a mile off ſhore. This is a good and ſafe place to anchor in the Eaſtern Monſoon, being well ſheltered by Carang-pingan point; off this point you have no ſoundings two cables' length from the breakers.—When Mount Poogong bears N. $\frac{1}{4}$ W. it is in one with Poolo Peſang.

Crooe *, the Engliſh ſettlement, lies 5 or 6 miles S. E. of Poolo Peſang; at high water a pinnace can go into a little river, which empties itſelf cloſe to the northward of Sillaloo rock.

The coaſt from Carang-pingan, which is a low point, to Seycoon or point Bandar, the weſt point of Cawoor, lies about N. W. by W. and S. E. by E. you have no ſoundings 3 miles off the ſhore; you anchor in Cawoor Bay, in 15 fathoms oppoſite to the factory.—Your boats go inſhore to the factory between 2 coral banks, having breakers on each ſide: the paſſage is narrow; and about 100 yards to the weſtward of the factory, is ſeen a ſmall black rock, on the weſtern bank, which you paſs very near, keeping it on the larboard hand. Steering out to the weſtward, you have regular ſoundings from 17 to 42 fathoms, ſand and ſhells, a little without the bay, then you loſe ſoundings.

Manna lies about 11 leagues N. W. by W. from Cawoor: 4 or 5 to the eaſtward of Manna you will obſerve *Red Cliffs* bearing about N. E. at the ſame time Manna point bears N. W.; this point is very remarkable, being a ſmall hill with palm-trees growing upon it like ſumerheads; you have no ſoundings, at 50 fathoms, till you get within 2 miles of the point, then 14 and 9, clay ground. A reef runs off from Manna point, and you muſt keep in 14 fathoms to round it.

You have ſoundings from hence to Fort Marlborough from 10 to 30 fathoms water, according to your diſtance off ſhore; the latitude of Manna is 4° 30′ South.

At Manna, a ſmall, but beautiful caſcade deſcends perpendicularly from the ſteep cliffs, which, like an immenſe rampart, line the ſea ſhore near that place. The *Elgin*, an Eaſt India ſhip, attracted by its appearance, ſent a boat in order to procure water there; but the boat was loſt in the ſurf, which is tremendous, and the crew drowned.

About 16 miles to the N. E. of Manna lies *Pring*, where an Engliſh factor reſides. In anchoring off that place, where the *Kent* went to take in pepper, December 14th 1786, Mr. *Price*, then an officer on board that ſhip, made the following obſervation, *viz.* "The

* Near this place, the birds-neſts, ſo much celebrated as a peculiar delicacy of the table, eſpecially among the Chineſe, are found in the greateſt abundance.

Reſident's

Reſident's houſe bearing N. E. by E. ¼ E. diſtance about 3 miles, we found ourſelves on the edge of a ſhoal, with very foul ground, coral rocks mixed with mud and ſand; we ſhoaled at once," continues Mr. *Price*, " from 9 to 7 fathoms, at which depth we anchored. The cutter then about ¼ of a mile of us, had 7 fathoms, very foul rocky ground; within that it ſhoaled very quick, and when blowing freſh the ſea broke on it. Having been driven on this ground in a ſtrong gale, our beſt bower cable was cut to pieces in one night.

" Ships coming to anchor off Pring ſhould keep in 12 fathoms water, although they lay a little farther out, and they will be in good muddy ground."

" Steering N. N. W. the wind N. E. along ſhore in 14 fathoms water, diſtance about 2 miles from the ſhore, came," ſays Commodore *Watſon*, " on a bank; had 9 fathoms, rocks, bore away W. by N. and had next caſt 15 fathoms; ſent a boat away to examine this bank; they found it extending along ſhore about ¼ mile and very narrow, the leaſt water upon it 7 fathoms; and inſhore 12 fathoms, ſoft ground, and 7 fathoms near the ſhore. This bank lies off a low point, about 4 miles to the eaſtward of Buffalo point, which is the extreme in ſight, bluff and very thick with trees; when about 5 or 6 leagues off ſhore here you loſe ſoundings.

" From Buffalo point to Manna point is 10 or 11 leagues; the land between it, I judge to be about N. W. and S. E. it has been a very erroneous opinion that there are no ſoundings to the ſouthward of Buffalo point, for the *Somerſet* had good and regular ſoundings between that and Manna point, from 12 to 30, 40, 60, and 70 fathoms, ſandy ground, where you may anchor if occaſion requires; but when paſt Manna point to the S. E. between that and Poolo Peſang they got no ground. *N. B.* Here runs a great ſwell on the ſhore.

" Standing in from the weſtward," continues the commodore, " between Rat iſland and Buffalo point, kept a good look out for a *Bank* laid down in one of my charts. Sent a boat to keep a head of the ſhip, and make ſignals if ſhe came into ſhoal water; we ſteered N. by E. with a light breeze at W. N. W.

" At ¼ paſt 6 obſerved the boat to make a ſignal for danger, had then 25 fathoms, prepared to tack; next caſt had 13 fathoms, coral rock; put about, had 8, 6. Bore away S. by W. as we came on, had 10, 13, 15, 20 fathoms, ſoft ground, then ſteered E. by N.

" The boat bore about N. E. from us ¼ a mile, and had 4 fathoms; and, in a caſt or two, was in 16 and 18 fathoms, hard ground, then 20 ſoft. Mr. *White*, chief mate of the *Oſterley*, told me he had ſounded all over this bank, but found no where leſs than 4 fathoms upon it, all coral rock.

" We worked all night between this bank and Buffalo point, keeping between 12 and 18 fathoms. At 6 A. M. anchored in the road.

" Off Buffalo and Poolo points lie *Two dangerous ſhoals or reefs*, on which the water breaks ſometimes, and we ſailed without them; when Poolo point bears N. 76° E. you are



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to the northward of the north ſhoal. The paſſage between Buffalo point and this bank is very ſafe and 4 miles wide, and the ſame between it and Rat iſland."

The beſt anchoring in BENCOOLEN ROAD is mid-channel between Rat iſland and the breakers, for near Rat iſland the water is deeper and foul ground; there is an inner road, within the North and South breakers, which has 5 fathoms water, where ſloops and ſnows ſometimes run into for the convenience of loading and unloading; it being near 3 miles for boats to go into the great road.

The following directions for boats to enter the north and ſouth channels may alſo ſerve for other veſſels, they keeping mid-channel; the ſouthern channel is narroweſt, but has the deepeſt water.

The marks for going through the north channel (which is to be choſen with the winds northerly) is to bring the ſugar-loaf and Rat iſland N. E. and S. W. then ſteer in, keeping the ſugar-loaf ſo, and this will carry you in mid-channel between the north and ſouth breakers, ſoundings 4 fathoms.

When the ſoutherly winds blow the ſouth channel is preferred, which is round the ſouth point of the ſouth breakers, and between them and the breakers on the ſhore.

In going on ſhore from your ſhip keep the Company's hoſpital, which is to the ſouthward, on your ſtarboard bow or right ahead, till you come near the ſhore or ſouth point of the rocks, then you will have the channel open and the ſouth breakers without you; then ſteer right in for the ſugar-loaf, keeping neareſt the breakers from the ſhore, till you have the fort on your beam; then ſteer in for the Carang or landing place: the paſſage into it lies cloſe to a bluff red point with a grove of trees on it; then keep to the weſtward to the landing place; about 150 yards without the ſhore lies a ledge of rocks from the ſhore, which keeps it ſafe for boats even in a ſtrong N. W. wind.

FORT MARLBOROUGH (in 1770) has two of the baſtions entirely demoliſhed, and the others much ſhaken; but the curtains are entire; the French did this and burnt all the houſes: the country looks very pleaſant, and if properly cultivated, fit to produce every thing both for profit and pleaſure; it is now eſteemed very unhealthy.

SILLEBAR RIVER lies in the bottom of a bay, about 10 miles to the ſouthward of Fort Marlborough; it would be much more convenient for fixing the ſettlement there, as the ſhips would then ride in ſafety in POOLO BAY; which is ſecured from all winds, and where you can with great eaſe careen and refit your ſhips cloſe to the ſhore, and ſail out readily. The country about Sillebar might be eaſily cleared, and would ſoon pay the expence of clearing it, as it is a very rich ſoil, and on both ſides the river fine plains, the fitteſt on the coaſt for producing ſugar canes; beſides, you would have the convenience of water-carriage to your ſettlement, which muſt create a great plenty of every thing, eſpecially amongſt ſuch lazy people as the Malays, who hate to bring any thing from a diſtance; and another great advantage would be the ſafety and expedition in loading and unloading ſhips.

"It has been objected that the country thereabouts, and particularly Poolo, is very unhealthy, yet we had a reſidency at Sillebar; and the gentlemen kept their health very well;

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well. I have been aſſured by Dr. *Stevenſon*, a gentleman who has reſided many years on this coaſt, and has carefully conſidered the country about Sillebar, that he thinks its ſituation very healthy, and that the water is extremely good; at Poolo there is a general complaint againſt the water*, but ſhips can be much eaſier ſupplied with water from Sillebar than they can from Fort Marlborough."

## 2° From *BENCOOLEN* to *MOCO-MOCO—INDRAPOUR—PADANG*, &c.

IN ſailing along ſhore to the northward, be ſure you give ſingle Deman Point a good birth, by reaſon of the foul ground and rocks that lie a conſiderable way off it. Your beſt way is to keep the ſhore on board, that you may not be deceived by the high land, which often ſhews itſelf in many different ſhapes, according to the weather. A little to the northward of ſingle Deman point you will ſee red cliffs, when you may run into what depth you pleaſe, as 9, 10, and 11 fathoms, and out to 20 fathoms. You will meet with good oozy ground for anchoring all the way, if occaſion requires, until you come near Ipoe (as hereafter mentioned) when you will loſe ſight of the Red cliffs.

From Bencoolen to Caytone is about 6 or 7 leagues, N. W. by N. it appears with an opening between the Red cliffs like a river: from thence N. W. about 2 or 3 leagues farther lies Sibblat, which appears alſo with an opening between the Red cliffs like Caytone.

From Sibblat, or Sablat, to *Aypour*, called alſo Ipoe, or rather Ippoo, the courſe is N. W. 2 or 3 leagues. To the S. W. of Ipoo runs out a bank of foul ground from the ſhore, extending near 2 leagues into the ſea: you will find upon it, from 6 to 10 fathoms, large coral: on the outer edge of it there lies a coral-rock, S. W. by S. 2 leagues from Ipoo, with no more than 14 feet water on it (on which the *Swallowfield* ſtruck) and from 8 to 16 fathoms round it; but come no nearer than 10 fathoms, it being very ſteep, and but a little way off it 30, 40, and 50 fathoms, and then preſently no ground. When you bring Ipoo N. E. by E. you are paſt the bank, that is to the northward of it, and may ſafely ſtand into Ipoo road, where you will ſee, a little to the ſouthward, three red cliffs, like country boats ſails, called *Tombongoes*, and three green hills, if clear weather, without theſe; the middlemoſt of which is that on which the old Paggar ſtood, bearing N. E. by E. the extremities of land, from N. N. W. to S. E. by E. large ſhips ſhould come no nearer to anchor than 9 or 10 fathoms, the road being clear, but within is ſhoal water and foul ground.

Between Ipoe and Bantall are 3 rivers, Ayer-Kuttah, Etam, and Trimang. About 6 or 7 leagues to the northward of Ipoo lies Bantall, in a deep bay; you may ſtand into what depth you pleaſe, after you are paſt Ipoo; but keeping off ſhore from 15 to 7 fathoms, you will find good ground, and even ſoundings: in croſſing the bay for Bantall there is a ſmall red cliff, which is the north point of Trimang river, pretty low near the water's

* The example heretofore quoted by Captain *Sampſon Hall*, has already proved the pernicious effect of that water.

edge,

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edge, and the only red cliff diſcernible between Ipoo and Moco-moco: when you ſee it, you may be certain where you are, and then look out for Bantall river's mouth; you can perceive it as you advance to the northward, if you keep in 6, 7, or 8 fathoms, which may be ſafely done; and a little to the ſouthward of ſome ſtraggling pine-trees, you will ſee the houſes and river's mouth, to the northward whereof are two white cliffs, which in the offing appear much like boats ſails: theſe marks, in clear weather, are ſeen a conſiderable way, and by them you may depend on knowing the places, in caſe you deſcry no other. It is a very good road to anchor in; when you have the river's mouth N. E. and the two above-mentioned cliffs N. N. E. you are then in the beſt of the road, and may anchor in good ſand and oozy ground, from 8 to 9 fathoms.

About 4 leagues N. W. from Bantall is AYER-DICKET, whoſe river has a large bar, which renders it unnavigable, even for boats: when you are near it you will ſee the river's mouth open, and may eaſily diſcover it, by a parcel of tall trees that ſtand thicker on each ſide of the mouth than any where elſe.

About 3 leagues N. W. of Ayer-dicket lies MOCO-MOCO: all the way between them is white ſand, and generally a great ſwell, heaving in upon the ſhore. A little to the northward of Ayer-dicket is a bluff point, full of trees, called Buffalo point; you muſt be ſure, if bound to Moco-moco, to keep it well on board, by rounding it in 6 or 7 fathoms, which may be done without danger; otherwiſe you may miſs the port: after you are about it, you will perceive a ſmall ſpiral tree, ſtanding a little to the northward of the river's mouth, and appearing at firſt ſight like a flag-ſtaff; to the ſouthward of this, as you open the bay, you next ſee a long houſe, which makes like a row of buildings, being the Dattie-Bugaſe's houſe: then next look out for the flag-ſtaff and Paggar, which you will not diſcover until you are ſhot well to the northward. You may at pleaſure anchor in Moco-moco road, from 6, 7, to 10, 11, or 12 fathoms, ſoft ground; the flag-ſtaff bearing from N. E. by E. to S. E. by E. according to the Monſoons, for the conveniency of boats coming on board, or going on ſhore.

As you ſail along ſhore, Moco-moco appears in the bottom of a ſmall bay, and clear of trees; when you have the bay well open, if to the northward, you may ſee the houſes and factory in the middle of the clear; on each ſide of the bay ſtand a row of tall pines, which make both extremes appear bluff; but in the morning, if not very clear, you can hardly ſee houſes or factory, until the Sun is 3 or 4 hours above the land, by reaſon of the ſhade the land and trees make which are at the back of it.

W. N. W. about 3 leagues from the flag-ſtaff, there is foul ground, rock and ſand, by which, coming from the northward, you may know you are near Moco-moco, in caſe you have not an opportunity of ſeeing the land or flag-ſtaff; ſoundings upon it are from 35 to 18 and 11 fathoms, and doubtleſs leſs water, for it breaks very high.

Never depend on your diſtance, run any where along this coaſt, as there are very ſtrong currents, frequently running above 2 knots an hour and very uncertain, being chiefly influenced by the ſhifting of the winds; for a twelve-hours gale along ſhore will occaſion a current, as I have found by experience.

*N. B.* If

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*N. B.* If a ſhip ſhouſd be in want of water whilſt ſhe is to the northward, the natives will bring it off to you: their uſual price has been 8 dollars for 6 puncheons: but your own boat cannot ſupply you by reaſon of the great ſurfs and ſhoal water there is on the bars.

The next ſettlement to Fort Marlborough is POLLEY, diſtant about 7 leagues; then that of LAYE, off which the ſoundings are regular, and the firſt red cliff is ſeen between Polley and Laye. The next ſettlement is CATTOWN, in latitude about 3° 30′ South: off this place you have very irregular ſoundings, rocky ground, for 7 or 8 miles from the ſhore, and breakers a little to the northward near one mile from it. A white cliff like a caſtle ſtands to the ſouthward of Cattown: SABLAT is next, and ſubordinate to the former.

The next ſettlement is IPOO, or Aypour: between this and Cattown you have no ſoundings 4 leagues from the coaſt, and when you get ſoundings, you ſhoal your water very quick to 7 fathoms, hard black ſand, above 3 leagues off ſhore.

MOCO-MOCO is in latitude 2° 37′ South. As you come from the ſouthward, you will ſee a large opening which is Mandoota river, and you muſt anchor near it, as the mouth of Moco-moco river is near this, and 3 miles to the northward of the flag-ſtaff. The qualo or bar is very dangerous.

INDRAPOUR POINT lies about 15 leagues to the N. W. of Moco-moco; it is very remarkable, being woody and low, and forming a deep bay, as the coaſt then lies to the N. E. its latitude is about 2° 15′ South. You have deep water off this point, and there commence the Dutch diſtricts.

AYER-RAJA, their firſt ſettlement, lies about 12 miles to the North of Indrapour; you have good anchoring in the road in 5½ fathoms, clay ground. In ſtanding into the bay there is ſandy ground from 20 to 10 fathoms, afterwards clay: as you round Indrapour point you will ſee a remarkable round hill, near the water-ſide, covered with wood and appearing black and longer than any near the ſhore; it lies about 4 miles to the northward of the river's mouth; if you ſteer North, and N. ½ E. from Indrapour point it will lead you into the road, in 8 fathoms water. The Dutch ſhips anchor farther out in 14 or 16 fathoms, that they may be able to clear Indrapour point, if they cannot ride in a N. W. wind.

The Paggar or ſettlement is 2 miles up the river, and not to be ſeen for the woods; by the flag-ſtaff are 2 or 3 little bamboe huts.

Now the navigation along the coaſt becomes troubleſome and dangerous, on account of the many ſhoals and ſunken rocks in the paſſage: "We continued," ſays the Commodore, "plying to the northward all day, working between 7½ and 16 fathoms; obſerved a *Shoal* to the northward appearing to lie 2 or 3 miles from the ſhore; which by ſtanding inſhore we brought in one with the northernmoſt extreme of land appearing like a high ſmall iſland, and a remarkable bluff point appearing nearly the ſame either from the northward or ſouthward. Sometimes in hazy weather this ſhoal does not break; but I think the foregoing

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foregoing bearings are ſufficient to direct you when near that danger. You have 15 and 16 fathoms 4 or 5 miles to the weſtward of it."

PADANG, the head-ſettlement of the Dutch, lies about 27 leagues N. N. W. nearly from Indrapour point: the fort is ſituated within 40 yards of the bank of the river, being a ſquare with 4 baſtions of ſtone, and the walls about 9 feet high; it is ſurrounded, except to the river, with a wet-ditch about 4 or 5 yards over, and from 4 to 6 feet deep. On the oppoſite ſide of the river are high mountains, which extend to the mouth of the river, from whence you may ſee every thing in the fort, and are not above 300 yards diſtance.

It is ſhoal water for near 2 miles without the river's mouth, though there is 2 and 3 fathoms at high-water, and about 10 feet on the bar; you go in round Padang head, and when in the river, in a ſmall bay under the ſaddle or foot of the head, is water enough for ſloops and ſmall veſſels; you muſt keep cloſe to Padang head going in, as the entrance is very narrow, and a ſand is thrown up on the oppoſite ſhore, by the breakers and the eddy of the river, you have a ſhoal water above the garden-houſe: after you paſs the garden-houſe, which is the firſt above the ſaluting battery on the ſtarboard ſide, you row over for the larboard ſhore, and keep near it, until you come to the ſtairs or landing-place.

The water here is very good, running from the rock, and is conveyed by bamboes in many places on the ſtarboard ſide, ſo that your boat may haul under them and fill; the largeſt is about 200 yards above the firſt. There is plenty of cattle at 4 to 5 dollars per head [but the Engliſh pay 8 Spaniſh dollars] twelve ducks for a Spaniſh dollar, fowls more, beſides limes, oranges, pumpelmoſes, and other refreſhments.

The natives are highly diſguſted with the Dutch for ſending *Tuancoo* (which in their language is "Lord of Lords") a priſoner to Batavia; I was told it was becauſe he ordered "that no perſon ſhould cultivate their ground:" on that account they have had no trade inland for ſome months.

You may lay under POOLO PESANG, which is off Padang head 3 miles: when it blows hard at N. W. your boat cannot paſs, as the breach is very great; but your ſhip is well ſheltered from the N. W. winds by the iſland, if you anchor about 2 cables' length from the ſhore; and it is ſteep-to the coral bank, with which it is environed about 40 yards from the ſhore. There is water on the iſland, by digging wells 4 or 5 feet deep at the foot of the hills, but the Dutch ſay it is unwholeſome, being impregnated with ſalt-petre; though it is ſoft, and taſtes very well: the wood is but indifferent.

There is a channel of 6 and 7 fathoms water all round this iſland (Poolo Peſang), but narrow; and cloſe to the ſhore, within a cable's length, it ſhoals 5 to 4 fathoms then 3; this flat lies between a ſmall round iſland, and in-ſhore of Peſang, along to Padang, and ſo far out, that when you have Poolo Mara well-open to the weſtward of Poolo Peſang, and about $\frac{1}{4}$ mile from the latter to the N. W. you find only 4 fathoms, ſand, and in ſome places 3 and 2 fathoms. Between the ſmall ſandy iſland 3 miles from Peſang, and the north point of the bay, off which it lies, are very uneven ſoundings and hard ground, from 4 to $2\frac{1}{2}$ fathoms

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fathoms in ſome places, and this continues near ½ mile to the Weſt of the ſand, when you come into 10 and 12 fathoms water.'

South 19° E. from the body of Poolo Peſang lies a rock on which it breaks ſometimes: between the ſandy iſland and this rock you have 7, 9, 12 to 13 fathoms, and to the weſtward, about one mile to the ſandy point, there is from 13, to 9, and 13, and then 12, 9, 7 fathoms to Poolo Peſang.

*Poolo Senaro* is a ſmall iſland bearing from the weſt point of Marra N. by W. and S. by E. its latitude correct is 0° 48' South by an obſervation.

*Poolo Dua* and Senaro in one bear W. N. W. ½ W. and E. S. E. ½ E. and *Poolo Muſquito* a little to the weſtward; northward of this iſland lies a coral ſhoal ſtretching N. W. and S. E. about ½ mile.

A *ſunken ſhoal* is ſaid to lie between Poolo Peſang and Marra about half-way, which rarely breaks, having 2 fathoms water on it.

Off Padang lie 7 iſlands, among which are ſeveral dangers; they are called Poolo Sato or 1ſt, Poolo Dua or 2d, Poolo Teega or 3d, Poolo Ampat or 4th, Poolo Leema or 5th, Poolo Annam or 6th, and Poolo Toojoo or 7th.

Poolo Sato is the ſmalleſt and eaſternmoſt, and bears from Peſang about N. W. 6 or 7 miles.

Poolo Sato, Dua and Teega bear about S. W. and N. E. of each other; Dua is a little bigger than Sato; by the charts there is a channel between them; it bears from the iſland Senaro W. N. W. ½ W. about 3 leagues.

Teega is the largeſt and ſouthernmoſt, between it and Dua are laid down many rocks and ſhoals, which ſeem to ſtop the paſſage; it bears from Poolo Peſang S. W. by W. 3 leagues.

Poolo Ampat is about the ſame bigneſs as Dua, and lies to the weſtward, bearing from Poolo Lema S. W. ½ S.

Poolo Lema is a ſmall iſland and one of the innermoſt; between it and Sato are ſome breakers, and the ſame between it and Ampat; to the northward it is clear, but has a reef of rocks to the S. W. extending about 2 miles from the iſland.

Poolo Annam appears to be the laſt iſland coming from the ſouthward, as Toojoo is not in ſight; it is one of the largeſt, and has ſome ſhoals laid down between it and Ampat, and to the northward of it.

Toojoo is the ſame as the others in ſize; N. W. by W. 3 leagues from it lies a coral bank, on which are ſoundings 5, 7, 9, 10 fathoms, and then no ground; whether there is leſs water upon it is unknown, therefore it muſt be approached with caution; this iſland bears from Poolo Caſſey, to the northward of the Priamans, S. W. by S. ½ S.

Poolo Sow or Ayer is a ſmall iſland to the northward of Poolo Peſang, and about 1½ mile from the ſhore; it has breakers off it to the ſouthward about ¼ of a mile; there is a ſhoal laid down in the chart South from it, and one about S. E.; it bears from Peſang N. by W. about 5 leagues.

When you are 3 or 4 miles to the northward of Poolo Sow or Ayer, you then come in on a flat, having 6 fathoms above 2 miles from ſhore.



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## 3° From *PADANG* to *AYER-BONGY*.

PRIAMAN lies about 7½ leagues to the N. W. of Padang: the 1ſt and 2d Priaman iſlands bear S. S. E. ½ S. and N. N. W. ½ N. diſtant about 2 miles. The 2d and 3d diſtant 1½ mile are about ½ mile in extent each; the northernmoſt is the ſmalleſt, and has a well of freſh water on it, where all the Dutch veſſels ſupply themſelves. You have a good ſhelter under any of the three from the N. W. winds: there is a paſſage, between the north iſland and the main, for ſmall ſhips; it ſhoals from it to the main gradually from 3½ fathoms, hard ſand, to 2 fathoms, mud, near the ſhore.

The next iſland is Poolo Cassey, about 50 yards in diameter, full of trees; it bears from the northernmoſt iſland N. W. ½ W. diſtant 4 miles, and from the main 2 or 3 miles; you have regular ſoundings between them of 7 and 8 fathoms; alſo round Poolo Caſſey on the eaſt ſide, 6 and 5½ miles from it, and gradually decreaſing to 2 fathoms within ½ mile of the ſhore, all ſoft ground, ſand and clay.

There is a bank off Priaman river, on the north and ſouth ends of which are two ſpots of ſand which ſhew themſelves; within it you have 2 fathoms, ſandy ground: to the N. N. E. of Poolo Caſſey, and half-way to the ſhore, is laid down another ſpot of rocks, which is all that is in the bay.

From the ſouthward, as far as the Ticoo Islands, extends a flat, along ſhore, having only 5 fathoms above 2 miles from the ſhore, and decreaſing gradually; by keeping your lead going you can borrow on, or haul off the ſhore.

To the weſtward of the Priaman iſlands are ſeveral ſhoals on which it ſometimes breaks; they are between 2 and 3 miles diſtant from the iſlands in about 15 fathoms water; but you have a good paſſage between them and the iſlands, by keeping near the latter, from 10 to 7 fathoms, till to the ſouthward of the Firſt iſland, when you deepen to 12 and 13 fathoms.

"If the wind ſerves, I would adviſe a ſhip to keep the inner paſſage; going to the eaſtward of the Firſt and Second Iſlands at about ¼ mile diſtance, or nearer, as the deepeſt water is cloſe to them, 5½, 6, and 7 fathoms; but towards the main you ſhoalen faſt and have harder ground; then ſteer for the third or northernmoſt iſland, giving the weſt end a birth, for the breakers are two cables' length from the ſhore, and within piſtol-ſhot of them is 7 fathoms; then ſteer for Poolo Caſſey; you may paſs on either ſide of it; if to the eaſtward, you will have 6 fathoms near it, but you muſt ſteer N. W. by W. for on a N. W. courſe you will ſhoalen to 4 fathoms, ſandy ground."

When you have Poolo Caſſey Eaſt, then you are abreaſt of the northernmoſt ſhoal, from which it is diſtant 2 or 3 miles.

Poolo Toojo bears from Poolo Caſſey S. W. by S. ½ S. about 5 leagues. When the Outer Ticoo iſland bears N. N. W. northerly, and the third or northernmoſt of the Priaman iſlands S. E. ½ E. it brings you on a *Shoal*, cloſe to which is 8 fathoms, then 3, the water being diſcoloured over it. However the *Duke*, Captain *Powney*, paſſed between two ſhoals bearing about S. S. E. from the Ticoo iſlands diſtant 5 leagues, and had no ground at 35 fathoms.

Priaman

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PRIAMAN is a Dutch ſettlement; the river is ſmall, a pinnace cannot go in until near high water (you land on the right-hand ſide). It lies within the coral bank before mentioned, and the flag bears S. E. $\frac{1}{2}$ E. from Poolo Caſſey.

The coaſt from Padang to this place is low and flat.

From the Priaman iſlands to the Ticoo iſlands, the navigation is ſafe if under 16 fathoms, and to 6 inſhore; without that depth is a ſhoal on which it breaks ſometimes, bearing about N. W. by W. from Poolo Caſſey and S. E. by S. from the Outer Ticoo iſland; you have 20 fathoms cloſe to the eaſtward of it. Outer Ticoo bearing N. W. $\frac{3}{4}$ N. and Poolo Caſſey S. E. there are breakers bearing from Weſt to N. W. diſtance 2 miles, depth 16 fathoms. Another ſhoal is lying S. W. by W. diſtance about 3 miles from the Great Ticoo; when the outermoſt and innermoſt Ticoo iſlands are in one N. E. $\frac{1}{4}$ N. and diſtant from the former $\frac{3}{4}$ mile, depth 16 fathoms. You may ſee the roll of a ſwell on this ſhoal, diſtance between 2 and 3 miles. Southward of the Ticoo iſlands there are ſeveral ſhoals; the coaſt is all clear within them from Poolo Caſſey to the Ticoo iſlands; within 6 fathoms $1\frac{1}{2}$ mile or 2 miles from the ſhore, the ground is a ſtiff clay full of broken rotten coral, like ſmall ſtones.

The coaſt, from the Priaman iſlands to the Ticoo iſland, is a little hilly; and lies about N. W. by W. and S. E. by E.

The Ticoo iſlands are ſmall and woody, about $1\frac{1}{2}$ mile diſtant from each other, and the innermoſt $1\frac{1}{2}$ from the main.

As you ſail from the ſouthward there appears a number of breakers among the iſlands, which ſeem to ſtop the paſſage; but the channel between the middle and inner iſlands is ſafe and good; off the ſouth ſide of the inner iſland is a ſhoal for near $\frac{1}{4}$ of a mile, having $5\frac{1}{2}$ fathoms, ſoft ground, cloſe to it; in the channel is a ſmall coral bank, wore with the water, and about a cable's length over; it is about $\frac{3}{4}$ of a mile from the innermoſt, and about $\frac{1}{4}$ of a mile from the middle iſland.

It is ſteep-to, all round; between it and the inner iſland, $6\frac{1}{4}$ cloſe to it; 7, 7, $6\frac{1}{4}$, 6, 5 fathoms cloſe to the iſland; between the ſhoal and the middle iſland the channel has deeper water, and is narrow, occaſioned by a ſpit off the north-eaſt end of the iſland, diſtance two cables' length, ſoundings 7, $7\frac{1}{4}$, 8, 8 and 9 fathoms near the Spit: the other channel is beſt, as you have it broader, and good room to anchor; in both it is ſoft ground.

After you have paſſed the ſhoal going to the northward, and keeping N. W. you will regularly deepen your water to 12 and 14 fathoms. To the South of the middle iſland about $\frac{1}{2}$ mile diſtant there are ſome rocks on which it breaks; of theſe you muſt take care if you run under the iſlands for ſhelter from the N. W. winds.

When you leave the Ticoo iſlands you will ſee *Maſſang Point*, on which grow trees appearing like bamboes, they are called pines; off this is foul ground, ſo that you muſt give it a good birth. The next point you open is *Oojong Raja*, which appears bluff like trees; there are three remarkable ſmall hills here, called the *Maſſang hills*, about 2 or 3 miles from the ſea-ſide; the ſouthernmoſt of which makes like a table, and the two others like hay-cocks; you may approach the ſhore ſafely to 12 or 15 fathoms. At Maſſang town is a great reſort of Malay craft, as they have never ſuffered the Dutch to ſettle in their country. All the coaſt



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is low land from the Ticoo iſlands to the ſouth point of Ayer-Bongy Bay; this is as high as Padang head, and appears at firſt like an iſland: the coaſt, from the Ticoo iſlands to it, tends to the northward, and forms a bay: here are ſeveral ſhoals to the ſouthward of AYER BONGY SOUTH POINT, which is called *Oojong Seecarbow*, and in the Charts *Oojong Gardja*.

You can paſs about mid-channel between the ſouthernmoſt ſhoal and two to the northward which appear as one, having 16 fathoms.

When Seecarbow point bears N. by W. then this ſhoal and the two northernmoſt are in one S. S. E. diſtance between the ſhoals 1 mile; the two northernmoſt are about a cable's length diſtant from each other, and from the point about 4 miles.

When POOLO TELLORE bears N. W. $\frac{3}{4}$ W. theſe two ſhoals are in one with it; it being then within the northernmoſt point of the bay, a ſail's breadth. There is another ſhoal inſhore off Tellore, on which it breaks, bearing N. by W. and from Tellore E. S. E. about 2 miles.

There is likewiſe a ſhoal with breakers, between the Iſland *Tellore* or *Poolo Tanga* and Ayer-Bongy, bearing N. $\frac{1}{4}$ E. 1 mile.

W. by N. 1 mile from *PooloSambo* lies a third ſhoal on which it breaks, which, when in one with *Poolo Pancal*, bears S. E. by E. weſterly. About North 1 mile diſtance from Poolo Panjang lies a fourth ſhoal with breakers.

You can ſail in with ſafety from the N. W. between Poolo Sambo and Poolo Panjang, in 7 and 8 fathoms, giving the iſland a birth, and run into $5\frac{1}{2}$ fathoms under Poolo Panjang, where you can anchor.

In ſailing paſt the ſhoals to the northward of Ayer Bongy in the day-time there is no danger, as they all break, and have good channels amongſt them; there is a ſhoal a little to the weſtward on which is 2 fathoms water; and which is placed in 25 fathoms water in the Charts.

Ayer Bongy is ſituated on the ſouth-eaſt ſide of a deep bay amonſt the hilly part; it has a river, and the Dutch have a ſettlement here ſince the year 1754.

## 4° FROM *AYER BONGY* TO *NATAL*, OR *NATTAL*, AND *TAPPANOOLY*.

MOUNT OPHIR bears Eaſt of Seecarbow, and about 32 miles from the eaſt point of Maſſang; it appears like an obtuſe cone, ſeparated from the chain of mountains, and ſtanding ſingle about 26 miles inland. It is ſituated almoſt under the Equinoctial Line, its latitude being 00° 6′ North, and is ſuppoſed to be the higheſt mountain of the iſland, which is viſible from the ſea. By the obſervations of *M. Robert Nairne*, its height, above the level of the ſea, is 13842 feet, or 1658 feet more than the vertical height of the peak of Tenerife, found to be about 12194 Engliſh feet, by the trigonometric operations of the French aſtronomers, in 1771. The diſtance at ſea, before Mount Ophir is ſunk under the Horizon, is 125 miles. A volcano South of this mount, and nearly 29 miles inland, is ſhort of its height by 1377 feet.

Between the north ſide of Ayer Bongy Bay and Poolo Tamong are ſome deep bays; and you have good ſoundings to 5 fathoms within a $\frac{1}{4}$ mile from the ſhore, and 10 fathoms about $\frac{1}{2}$ miles diſtance; you deepen quick to 17 fathoms, and then gradually as you ſtand off, ſo that

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that it is adviſable to work up near the ſhore to avoid a coral bank, with uneven ſoundings from 18 to 6 and 12, &c. and perhaps leſs water, when on it.

On POOLO TAMONG you will find good water and wood; there is a clear paſſage all round; you anchor in 8 or 9 fathoms, about 2 cables' length off ſhore, bringing the ſouth ſide of the iſland to bear W. S. W. where you are well ſecured from the N. W. winds.

Poolo Tamong and *Caracara Point* form NATTAL BAY, where we have the factory of *Natal*, called alſo *Natar*, which was re-eſtabliſhed in 1762. In the bay are many dangerous ſhoals, ſeveral of them with breakers; many ſhips coming into and ſailing out of this road have ſtruck on ſome of them: it is very difficult to give directions for ſhaping courſes to avoid theſe dangers, which reach out into 17 or 18 fathoms.

To ſail into NATTAL ROAD from the ſouthward keep in 16 and 17 fathoms till Nattal hill, which is low and to the northward of the river, bears E. by S. then ſteer in, keeping it ſo, and you will ſhoalen your water regularly to 7 fathoms, where you anchor 2 miles off ſhore, the flag-ſtaff bearing Eaſt. If you come from the northward, you may keep in 16 fathoms, until you have the above bearings.

In going into Nattal road, ſays the journal of the *Aſia*, in 1770, after you have 14 fathoms bring Nattal hill to bear E. S. E. (and by no means to ſouthward of that) round Caracara point about 4 miles and not leſs; for off this point lies a dangerous ſhoal, on which there are from $\frac{1}{4}$ 5 ſoft to $\frac{1}{4}$ 2 fathoms, hard on one caſt, and when the iſland bears N. E. by N. you are clear of it. Do not fear keeping well to the ſouthward of this ſhoal, as the channel is 3 miles broad, and after you ſhoal to no leſs than 10 fathoms the rocks are all without you; haul to the ſouthward at diſcretion to get in your anchoring birth; it is common to bring the flag-ſtaff E. by N. and lie in 4 fathoms; but the *Aſia* came to in $5\frac{1}{4}$ fathoms. There is not the leaſt ſhelter from N. W. winds, which, however, are not violent or of long continuance to the northward of the Line. This place lies in the latitude 0° 29′ North.

When you have opened Caracara you will ſee ſeveral ſmall iſlands; the ſouthmoſt is called the *Capuchin*, and by the natives POOLO CAPECHONG; it lies very near the ſhore under Caracara; the ſecond is POOLO TELLORE, near which lie two ſmall ſhoals. POOLO RINGAWAN is a ſmall round iſland to the northward of Tellore, and POOLO ZEELADY is the outermoſt iſland.

POOLO TABOOYONG, or *Mooady*, is eaſily known by a high rock off its weſt ſide; on it you have good water, plenty of cocoa-nuts, and ſafe riding from a N. W. wind, there being 4 and $4\frac{1}{4}$ fathoms water all round, ſoft ground; it is about 7 or 8 miles diſtant from the ſhore.

The next iſland is POOLO ELY, larger than any of the former, about 1 mile in length, pretty high and even; it is about 7 leagues diſtance from Zelady; you may anchor ſafely under it, and it affords wood and good water. From Poolo Ely to the SUGAR-LOAF your courſe is N. by W. $\frac{1}{4}$ W. diſtance about 4 leagues, good ſoundings along ſhore: between POOLO BACCAR and the Sugar-loaf is an open paſſage, with ſoundings from 14 to 19 fathoms;

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off the north-weſt ſide of Baccar a ſhoal runs off about a cable's length; and off the north-eaſt ſide of the Sugar-loaf, runs likewiſe a ſmall ſhoal about a cable's length; the other parts are ſteep-to.

To the ſouthward of *Manſelar*, or *Maſſular*, are many iſlands, which open as you come near the bay: theſe iſlands and *Battoo Mama Point* form the ſouthern paſſage into the *bay of Tappanooly*, about 4 or 5 leagues wide; and Maſſular and *Pattoo Booroo Point* form the northern paſſage. Our ſettlement is on a ſmall iſland called PUNCHONG CACHEEL.

The BAY OF TAPPANOOLY or *Tappeanoely*, as the Dutch ſpell it, is not ſurpaſſed for natural advantages in many parts of the world. Navigators ſay that all the navies of Europe might ride there with perfect ſecurity, in every weather; and ſuch is the complication of harbours within each other, as to lead ſome to aſſert, that a large ſhip could be ſo hid in them, as not to be found without a laborious and tedious ſearch.

In entering between Poolo Baccar and the Sugar-loaf, you find 17 fathoms, the deepeſt water being near the Sugar-loaf, and you have 12 or 11 fathoms within $\frac{1}{4}$ mile to Puncheon Gadang; having paſſed the ſhoals, and a little iſland off the north ſide, within a ſhip's length of the ſhoal in 8 fathoms water, you can anchor in 7 about 2 cables' length off Poolo Puncheon Gadang, within 20 yards of the ſhore. E. N. E. from this is a bay about 4 miles deep, the north ſide of which is made by an iſland called POOLO SEEROODOOT, which has a paſſage round it, 3 fathoms between it and the main, but very narrow; you ſhoal your water gradually from Puncheon Gadang from $7\frac{1}{2}$ to 5 fathoms at the entrance, then $4\frac{1}{2}$, $4\frac{1}{4}$, $3\frac{1}{2}$, 3, and $2\frac{1}{2}$, at the bottom of the bay, ſoft mud.

POOLO PUNCHEON GADANG has ſome high ſteep hills on it, all covered with large timber; near the foot of theſe hills, which are clay ground, you have ſeveral ſprings of very good water.

Between Puncheon Gadang and Poolo Seeroodoot is 2 miles, with 8, $7\frac{1}{2}$, and 6 fathoms, good holding ground, and between it and POOLO PUNCHEON CATCHELL, on which is a ſettlement, you have 8, 9, 10, and 7 fathoms; near the latter, the paſſage is a large mile.

Within Puncheon Catchell you have 5 fathoms 2 cables' length from it, then 6 and 7; between it and POOLO PANJANG is about $\frac{1}{2}$ a mile, a clear paſſage with 7 fathoms water; you may alſo run up within Poolo Panjang and anchor in 5, 6, or 7 fathoms: off the north-eaſt end of it is a coral ſhoal running almoſt over to POOLO BOBY, though there is a narrow channel, having $1\frac{1}{2}$ fathom to keep in; you muſt ſtand cloſe to Poolo Boby till it is open from the main; then ſteer over for the weſt end of POOLO PALLA, which will carry you between this ſhoal and a ſhoal that ſtretches from the main, there is no other paſſage for a pinnace; off the weſt ſide of Poolo Panjang lie two ſunken rocks.

When you come out of the bay and are ſailing to the northward, you have a fair and open channel with good ſoundings 12, 14, and 16 fathoms: about 2 miles from the ſhore you will ſee a ſmall iſland, called POOLO SOCKUM; off this iſland about 4 miles, lies a ſand bank having 8 fathoms, and in ſome places 7: when you are upon it, the Sugar-loaf iſland is ſhut in within the ſouthern point of the bay, and the iſland bears about N. by W. 4 miles diſtance.

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About a $\frac{1}{4}$ of a mile to the weſtward of this iſland is a coral reef, dry in ſome places; you have 6 fathoms abreaſt of it, then 7: at 2 cables' length diſtance there is a ſhoal on which it breaks, lying half-way between Poolo Sockum and Poolo Panny; it is about a mile from the ſhore. To the ſouthward of Poolo Panny is a ſmall iſland, and a dry ſand with a buſh upon it, a mile to the northward of that, having a ſhoal reaching to the ſhore: do not come under 6 fathoms, and you will be clear of them all; it is very foul between Panny and Sockum.

Under *Poolo Sockum*, called alſo *Carrang* or *Cæſar's* Iſland, is good anchoring for large ſhips, and you are well ſheltered from the N. W. wind; but to the N. W. is a reef on which it breaks, near a mile from the iſland; in paſſing this iſland to the weſtward, and ſtanding in for Tapoos Bay, there is no danger till you are well in the bay, where is a reef on which it breaks, about 2 miles diſtant from the ſhore, having 8 fathoms water cloſe to it on the outſide, and 4 to $4\frac{1}{2}$ between it and the ſhore; here is fine ſhelter, under the point, in the bay, where you may ride ſafely in what depth of water you chooſe.

## INSTRUCTIONS for the WEST COAST of SUMATRA, coming from the NORTHWARD to BENCOOLEN.

By Captain George Baker.

ALL the ſhoals on the Weſt Coaſt of Sumatra are white coral rocks, and can be ſeen a mile off from the maſt head, even when they are 3 fathoms under water, ſo that by keeping a good man at the maſt-head there is but little danger in the day-time.

If you are to touch at Tappanooly, it is beſt to fall in with the coaſt to the northward of all the iſlands, and ſo go down along ſhore.

If you intend for Padang at once, it is beſt to ſail to the ſouthward of *Poolo Pingey*; but ſuppoſing you go along ſhore and fall in with the coaſt to the northward of the iſland. Obſerve that there are two paſſages along ſhore: one, called the *Outer*, which carries you from 4 to 10 leagues off ſhore; the other, which is the *Inner*, will carry you from 2 miles to 12: in ſome places both paſſages meet; the Inner Paſſage is eſteemed the ſafeſt with a leading wind, for the following reaſons; you can judge of your diſtance better, by being near the land, and you have ſhoaler water in caſe of anchoring; beſides, you are not ſo liable to over-ſhoot your port; but you labour under the diſadvantage, in caſe you have bad winds, that you cannot make ſo much uſe of them in the Inner as in the Outer channel.

The next and greateſt Malay Port, for trade, is Sinkell; here you may ſell blue cloth for 80 dollars per corge, and white for 120: other goods in proportion; but the worſt is, you are obliged to take Benjamin and Camphire for your payment; although if they be in want of Goods you may ſqueeze gold-duſt from them. It was here, that the Malays attempted to cut off Captain *Doggan*, ſo you muſt be on your guard; Sinkell is a very great mart for ſalt, iron, ſteel, and ſometimes opium.

In ſailing from Bancoongong, (about 17 leagues to the North), to Sinkell you go within

*Banjack*

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*Banjack* or *Banias*, and close by Paſſage iſland, leaving it on the ſtarboard hand. Midway between Paſſage iſland and the main is a dangerous ſhoal, therefore you muſt keep the iſland or main cloſe on board; it is certainly beſt to keep hold of the iſland, all round which it is dry at low water upwards of a cable's length; neither is there any iſland within Paſſage iſland whereby you may be deceived. Having gone beyond Paſſage iſland about a league, you may haul in with the main in 10 or 11 fathoms water, and ſteering to the ſouthward, you will ſee a large river with an iſland at the mouth of it; this is *Sinkell River*, but not the place for anchoring: you paſs Sinkell river and round the next point, (called *Oojong Raja*) in 6 or 8 fathoms, hard; when you touch ſoft ground, haul up N. N. E. and that will bring you near a low ſandy iſland, which you muſt keep on the ſtarboard ſide; between it and the point you may anchor. But if you deſign to lay 5 or 6 days, it is beſt to run into 5 fathoms, mud, between a ſmall iſland (called *Sleago*) covered with trees, and the main: there you may ride ſafe from every wind that blows: this is the place where the Sinkellers tranſact all buſineſs; and perhaps you will not ſee a living ſoul for two days; however you muſt wait with patience, for the people muſt come all the way from Sinkell, and poſſibly may not hear of your arrival for three days.

Between Sinkell and Baroos, a Dutch ſettlement, are many ſmall Malay places, where traders often do buſineſs.

In leaving Sinkell get into 20, 22, or 23 fathoms, mud, and ſteer along ſhore for *Poolo Looketta*, between which, and pretty near it and the main, is a low ſandy iſland. This you keep on the ſtarboard hand, and may go within $\frac{1}{4}$ a mile of it; when paſt, haul in for *Poolo Carrang*, an iſland which lies off Baroos, or *Barros*; you may anchor to the ſouthward of it in 10 fathoms, mud, having its body N. W. by W. $\frac{3}{4}$ mile diſtant. Here is an excellent market for opium and cloth, provided you take benjamin and camphire. Very good freſh water is to be had at Baroos, and when your boat goes aſhore the firſt time, ſhe muſt lie off a little way from the ſhore, until they ſend a perſon to conduct her into the river, otherwiſe you may loſe her.

In leaving Baroos ſteer midway between the main and Massular until you come near the eaſt end of it, then haul over for the main, and you will fall in with, or near, the north point of Tappanooly Bay, which you may paſs within 2 cables' length, and, going in for the harbour, keep all the iſlands on the ſtarboard ſide, and anchor in 7 fathoms, mud, abreaſt of a ſmall green plot on the larboard going in. It is one of the fineſt harbours on the coaſt. Salt, iron, and ſteel will anſwer here and at Nattal. Tappanooly Fort ſtands on a ſmall hill at the bottom of the bay, and when you are at anchor look towards the North or N. N. E. and there you will ſee it.

Proceeding for Nattal, paſs near the Sugar-loaf, on the ſouth ſide of the bay, and ſteering a little off ſhore until you have 24 or 25 fathoms, mud. Six or 7 leagues to the ſouthward of the Sugar-loaf is an iſland, pretty near the main, called Poolo Ely, and about 5 leagues to the ſouthward of that, are the two iſlands of Zelady; you go without them. To the ſouthward of Zelady, 3 or 4 leagues, is a large and dangerous ſhoal, on which there are breakers: you may either go within or without it; it is adviſable, however, to go without,

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without, as having moſt room: do not bring Zelady to the weſtward of North until you are paſt it; and when *Cara-cara* Point bears S. E. by E. you may haul in for it, and paſs within 2 miles of the point. In rounding Cara-Cara point for Nattal road, take care of a ſhoal with breakers, which lies from Cara-Cara point S. W. ¼ W. about 1½ mile diſtant.—The bearings for anchoring in the road are Cara-Cara N. by W. Nattal flag-ſtaff E. S. E. ¼ S. and Durian Point S. by E. ¼ E. in 5 or 5½ fathoms, mud, and 2 or 3 miles off ſhore. Nattal road is one of the worſt on the weſt Coaſt of Sumatra, having often a very large ſea and dirty weather, and when the wind blows hard from the weſtward you cannot clear the ſhore. There is a great private vend here for opium, cloth, blue and white, iron, ſteel, ſalt, &c. but it is entirely in the Reſident's hands.

Between Nattal and Padang are the two Dutch ſettlements, called *Ayer Bongy* and *Priaman*, heretofore deſcribed.

" About the mouth of Nattal Bay lie many ſhoals*, therefore, when you leave it, keep near Durian Point, and paſs Poolo Tamong about a league diſtant. Before or when abreaſt of Tamong, I think it is beſt to haul over for Poolo Pingey; at leaſt to keep nearer the ſmall iſlands within Pingey, than the main; for almoſt midway between Pingey and the land is a large ſpot on which are very irregular ſoundings, from 20 to 5, and from 15 to 4 fathoms, hard coral rock: this ſhoal lies from Poolo Tamong S. W. by S. about 3 leagues.

" Many are the different tracks from Pingey to Padang, and I think," ſays the Captain, " the Inner Paſſage preferable to the Outer one, as there are a vaſt number of ſhoals in the offing of the Ticoo iſlands and Priaman, which muſt be taken particular care of; indeed I think this the moſt difficult part on the coaſt."

" When you are clear of the ſhoal, lying from Poolo Tamong S. W. by S. 3 leagues, ſteer S. S. E.—S. E. by S.—S. E.—and S. E. by E. gradually rounding the ſhoals of Ayer Bongy (on many of which the ſea breaks), and at all events fall in with *Oojong Maſſong Point*, on which are three ſmall remarkable hills near the ſhore, and low land all round them: when within two or three miles of this point, ſteer for the *Outermoſt of the Ticoo Iſlands*, which are three in number, and take care of a ſhoal that lies from them W. by S. or thereabouts almoſt 2 leagues; you keep within a mile of the Ticoo iſlands, and if night is coming on, take ſhelter under the outermoſt, then about ½ a mile off it, bearing Weſt or W. S. W. in 9 or 10 fathoms.

" In getting under weigh, or paſſing the Ticoo iſlands, keep within a league of the main

* Monday the 23d of Auguſt 1784, the ſhip *Royal Biſhop*, on her paſſage from Tappanooly down the Weſt Coaſt of Sumatra (having a pilot on board) at ¼ before 10 A. M. came ſuddenly on a ſhoal of coral rocks, from 17 fathoms to 4 and 3, and ſtruck ſeveral times; but the coral being ſoft, broke under her keel. The pinnace being out was ſent a-head, and found the ſhoaleſt water to be 4 fathoms, except juſt where the ſhip ſtruck: on the top of the rocks there was only ¼ leſs 3. The water being remarkably ſmooth, and the ſhip having delivered part of her cargo at Tappanooly, drew only 16 feet, by which means ſhe fortunately got off, and deepened to 4, 6, 7, 8, hard ground; 12, 14, 16, ſoft ground, and then ſhoaled again, ſteering in for the road.

The ſhoal did not appear to be 3 or 4 times the ſhip's length. Cara-cara Point then bore N. E. ¼ N. Nattal flag-ſtaff E. ¼ S. and Poolo Tamong S. S. E. ¼ E.



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or leſs, and take care of two ſhoals; one within, the other without you; keep a man at the maſt-head, and when you ſee white or greeniſh water, ſteer from it: when you come within a league of POOLO CASSEY, you muſt ſteer directly over for POOLO TOOJO, which is the northernmoſt of all the PADANG ISLANDS; keep this iſland pretty cloſe on board, and paſs to the northward of it; when paſt it, ſteer for POOLO LEMA: keep that alſo on the ſtarboard ſide pretty cloſe, and when clear of it, ſteer directly for POOLO PESANG, under which you may anchor in 7 to 5 fathoms, mud, within two cables' length of the iſland, ſheltered from all weſterly winds: this is the proper place for anchoring, but you may anchor off the mouth of the river, if promiſing weather, in 14 fathoms. When paſt POOLO SATO, which is the next iſland to Leema, you will ſee Dutch colours hoiſted on a hill, facing to the northward; or, which is a more certain guide, the land near the ſea, and to the northward of Padang river is quite low, that to the ſouthward is quite high, and the ſouthernmoſt point of the river is a pretty high bluff head remarkable enough. If the weather is promiſing, and you intend but little ſtay, anchor in 13 fathoms, ſoft. The Flag-ſtaff bearing E. $\frac{1}{2}$ N. diſtance off the bluff head half a mile.

"If the weather threatens, and you expect to ſtay three or four days, it is beſt to take ſhelter under PESANG; with ſmall veſſels you may go within it, but with large go without, and round it about two cables length off the iſland: and it is neceſſary to moor. The Dutch love to be ſaluted with guns, therefore I would recommend not to ſpare powder, though your ſalute is not returned, becauſe their fort is a mile inland: your plea is want of wood or water, or ſome other neceſſity that drove you there, for they muſt report ſuch to Batavia.

"PADANG is certainly the beſt vend on this coaſt, for all kinds of goods, provided they have not lately been ſupplied from Batavia, you may diſpoſe of whole ſhips cargoes; but take none of their benjamin, nor bar gold, or god trinkets; only gold duſt, which they have in plenty. If they be in want of opium they will give 300 dollars per cheſt; from 65 to 75 per corge, blue cloth; from 90 to 110 per corge, white, and ſo in proportion for other commodities.

"In taking of gold duſt, that you may not be a ſufferer, I would adviſe you to take aquafortis with you; in proving, take a *tale** weight of gold duſt, put it into a china cup, and pour a little aquafortis on it; if good it will remain pure and unſullied and will not loſe in weight; if bad it will ſmoke and ſend up a ſulphureous fume, and will loſe more or leſs in weight, according as it is adulterated. At Padang, or any other Dutch ſettlement, they will not ſuffer you to try their duſt: but you muſt take it as they chooſe to give it you. True, it is not ſo good as that of the Engliſh, but the prices you get for your goods, balance for the bad quality of the gold duſt, and the trying of duſt only affects the Malays, ſo that in dealing with them make them allow a proportion for the

* The *Tale*, *Tial*, or *Tael*, is the moſt eſtabliſhed weight in this trade, which differs however in the northern and ſouthern parts of the iſland, being at *Nattall* twenty-four pennyweights nine grains, and at *Padang*, *Bencoolen*, and elſewhere, twenty-ſix pennyweights twelve grains: at *Achten* the *Buncal* of one ounce ten pennyweights and twenty-one grains is the ſtandard.

whole

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whole that is loſt in one tale. At Padang you muſt pay 5 per cent. cuſtom, at other Dutch ſettlements none.*

" When you leave Padang, ſalute, as you have done at coming in, and ſteer down for POOLO BOBECK; keep that on the larboard hand, and go within POOLO PERGANY, TELANG and MARRA; this is a bold paſſage, though vaſtly narrow; if afraid you may go without them, but I have been working tack and tack through it. After paſſing Marra ſteer for BOBY CACHEEL, go on either ſide; and, paſſing it, ſteer for AWOOR BASSAR, keeping it on the ſtarboard ſide: when abreaſt of it, look towards the N. E. and you will ſee Dutch colours hoiſted on POOLO CHINQUE; ſteer for it, and keep it half a point on the larboard bow, and anchor in 12 fathoms. When you go aſhore and have agreed to do buſineſs, they will ſend a pilot to conduct you into the harbour: it is here, as at Padang, only no cuſtom; goods bear the ſame prices, and ſometimes more than at Padang.

" Having done your buſineſs, ſteer down along ſhore in 20 to 25 fathoms water till abreaſt of POOLO BRINGEN, (keep nearer Bringen than the main for fear of a ſhoal that lies between them) and then haul gradually over for the main; when Poolo Bringen bears S. W. you may ſteer Eaſt and E. by S. that will carry you near a Dutch ſettlement called AYER RAJA, where you may do ſomething; it is a very difficult place to find out, (without the flag is hoiſted, for it is a mile inland,) and attended with danger, having no ſhelter from the N. W. winds; indeed, excepting your buſineſs is very preſſing, I would not have you to anchor here; however, if you do, go no nearer than 8 fathoms, Poolo Bringen bearing W. $\frac{1}{4}$ N. Ayer Raja flag-ſtaff Eaſt, and Indrapour point S. $\frac{1}{4}$ W. about 2 miles off ſhore.

" Here you have no occaſion to ſalute, except the Reſident comes on board; if there be any thing of a ſea and low water, it is dangerous for boats going into the river, becauſe the ſurf ſometimes breaks high on the bar.

" Being now at Ayer Raja you are paſt all the iſlands and ſhoals worth mentioning as far down as BENCOOLEN; except one to the ſouthward of Moco Moco, which I ſhall ſpeak of by and by. In leaving Ayer Raja ſteer for INDRAPOUR POINT, at about a league's diſtance, and ſteering down along ſhore about 4 miles off, until you ſee Moco Moco fort, which is a large white building near the ſhore; run into 10 fathoms, mud, and anchor, having Moco Moco fort bearing E. by N. or Eaſt; here you cannot attempt going aſhore in your own boat, but muſt wait till a boat comes from the ſhore to carry you in over the ſurf.

* " Gold, when brought to our ſettlement, is purchaſed at the high rate of three pounds five ſhillings ſterling the ounce; ſo that on exportation to Europe, it ſcarcely affords a profit even to the original buyer; and others who employ it as a remittance, incur a loſs, after the India company's duties, and other incidental charges are deducted. The whole quantity of gold procured at the ports on the weſt coaſt of Sumatra, may be eſtimated at about ten thouſand ounces annually, of which Padang alone (before its late capture by the Engliſh) has been uſed to draw to it at leaſt one third part. What quantity finds its way to Palembang, and other places on the eaſtern ſide of the iſland, it is not in my power to compute, but I think it cannot be leſs than the former. In that eſtimate," ſays Mr. *Marſden*, (p. 313) " I do not include Acheen, and I under-rate the produce of Padang by at leaſt one third, not making allowance for the private traffic, which, though contraband, is very conſiderable." *Hiſtory of Sumatra*, p. 134 and 135. We muſt obſerve here, that the Dutch exported then all their gold to Batavia.



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" From Moco Moco, about 3 leagues to the ſouthward, is a ſhoal ſtretching off ſhore about 5 miles, on which are very irregular ſoundings, and hard coral rock.

" Come no nearer the ſhore than 20 fathoms until you get ſight of RAT ISLAND, then ſteer in, midway between Rat iſland and MARLBOROUGH FORT, anchor in 10 fathoms, mud, having Rat iſland bearing S. W. Marlborough flag-ſtaff E. $\frac{1}{4}$ N. and Black Rock breakers S. E. by S. $\frac{1}{4}$ S.

" I would not have you venture aſhore here unleſs ſome of your people are acquainted, for ſeveral boats have been loſt on the breakers, therefore make a ſignal for a boat.

" In a caſe of a hard N. W. gale and large ſea, it is beſt to run down to POOLO BAY, obſerving the following inſtructions, *viz.* go no nearer the black rock than 14 fathoms; when paſt it, ſteer down and haul in for *Sillebar*, keeping it a little on the larboard bow; look out a-head on the ſtarboard bow, and you will ſee a low ſandy point called *Poolo Point*; go within half a cable's length of it, and luff round it at the ſame diſtance; here you may anchor with ſafety in ſmooth water; do not go too near the ſouth-eaſt ſide of the bay becauſe there are ſunken rocks.

" Midway between Rat Iſland and Buffalo point is a very dangerous ſhoal, on which I have ſeen the ſea break exceſſive high, therefore in going from Bencoolen to the ſouthward keep either the point or iſland on board."

## THE PRINCIPAL ISLANDS ON THE WEST COAST OF SUMATRA,

### HOG ISLAND—POOLO NYAS, OR NIAS—POOLO MINTAON—GREAT FORTUNE ISLAND—THE POGGY OR NASSAU ISLANDS—ENGANO ISLAND.

ALL theſe iſlands which lie in a direction parallel to the Weſt coaſt of Sumatra, at the diſtance of about 20 leagues, are very little known; and except Good Fortune Iſland, the Poggy iſlands, and Engano, we are ſcarcely acquainted with the others.

HOG ISLAND and POOLO NYAS, which are amongſt the largeſt of the whole range, lie to the northward of the Equator; the others are to the ſouthward of it. A great trade is carried on from Nattal to this iſland: the articles received from thence are rice and ſlaves, and of theſe laſt not leſs than 450 annually, beſide about 150 which go to the northern ports. In catching theſe unfortunate victims of the avarice of the chiefs, and of the Europeans, it is computed that not fewer than 200 are killed; which together form a conſiderable number for ſuch a ſmall iſland to ſupply. Theſe people are ſmall in their perſons, of a fair complexion, particularly the women, who are moſtly ſent to Batavia.

The eaſt ſide of Poolo Nyas called PORA by the natives, and by us GREAT or GOOD FORTUNE

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FORTUNE ISLAND, has been explored by Captain *John Whiteway* of the *Cuddalore* ſloop, in 1750; but he differs widely in the latitude of the ſouth end of the iſland, from that aſſigned by the Snow *Jenny* in 1769*; beſides making a ſingle iſland of Pora, whereas the *Jenny* divides it into two iſlands, between which ſhe diſcovered a *Paſſage*, and has given the following inſtructions for ſailing through it.

"If your buſineſs," ſays the diſcoverer, "is within the iſland, and you ſhould be driven to leeward of the north end of the large iſland (on the weſt coaſt) I would adviſe that paſſage. Keep the higheſt land on the large iſland to bear E. N. E. but not more North, till in 17 or 18 fathoms, white clay, which ſoundings you will have within the ſmall iſlands, if you keep mid-channel between them and the large iſland. When you have run the length of the third iſland, and brought it to bear about Weſt, you will ſee to the eaſtward the north point of THE STRAITS, to be ſure of which ſend your boat till you make Two tree point; this point may be eaſily known by two very tall trees, ſtanding on the extreme of it among the rocks, and about half a cable's length from the reſt of the trees. The paſſage is clean and good till you are paſſed Two tree point; then you muſt keep your boat a-head, and a good look out from maſt-head, as there are many rocks lying between the point and Coconut iſland as well as Long iſland. As you ſteer from Coconut iſland over for the breakers off Long iſland, you will have great overfalls and very foul ground; but when you bring theſe breakers N. W. and S. W. you will find 45 fathoms, and half a cable's-length more to the eaſtward, you will have no ground. You may then ſteer your courſe to where bound."

According to Captain *Whiteway* the north coaſt of Good Fortune iſland extends 5 leagues from W. N. W. to E. S. E. and nearly toward the weſt end, about 4 leagues W. N. W. from Cape Tilleroo, the north-eaſternmoſt end, lies HURLOCK'S BAY, which may be known by three ſmall iſles off that part of the iſland; the ground is good and ſoft in the bay, but as the outer bay is open to the N. E. winds, the inner bay muſt be preferred, though the channel is narrow and the larboard ſide rocky; this channel is ſafe, with a fine red ſandy beach on the ſtarboard ſide, all round the point.

From Cape Tilleroo, according to the ſame officer, the eaſt ſide of Good Fortune extends about 10 leagues S. S. E. to Cape Marlborough, the ſouthernmoſt end of the iſland. In this ſpace there are two remarkable bays, Se-ooban bay, 10 miles to the ſouthward of Cape Tilleroo, and Se-labba bay, 7 miles farther to the South.

SE-OOBAN BAY may be known by a large tuft of trees on the ſtarboard ſide going in; your courſe in is S. W. and you may anchor where you pleaſe, to ſhelter you from what wind may have forced you in, or to be ready to ſail out with the wind you wiſh for: but the beſt is the ſouth part of the bay, the larboard point going in, bearing N. E. it is beſt when you enter you ſhould keep mid-channel to avoid the rocks off the point, and when at

* According to the *Jenny* the iſlands of Great Fortune lie from 1° to 2° ſouth latitude; and according to the *Cuddalore* Fortune iſland lies from 1° 50′ to 2° 25′ South.

anchor

anchor ſound about the ſhip to try if your birth is clear, as in ſome places there are ſpots of brittle coral rock.

Se-labba Bay is known by a high peak on the ſouth ſide, called the *Turk's Cap:* when entered, keep the ſouth ſhore well on board; but firſt give the ſouth point a good birth, on account of the rocks running out. The ground is muddy in the bay, except the middle ground, which is brittle coral rock, viſible at low water.

The Iſland of Good Fortune muſt be very populous, if we are to judge of the number of its inhabitants by the number of ſlaves which are annually ſent from thence. Twelve miles from that iſland lies Cape Cuddalore, which is the northernmoſt end of North Poggy, or *Poggee* iſland, called by the Dutch *Bergland*; this iſland is about 20 miles long, and from 10 to 13 broad, and ſeparated from South Poggy, or Nassau Island, by the Strait of Se-cockup. Naſſau, whoſe name is alſo given to both iſlands, is longer than North Poggy, but has only half its breadth.

The Strait of Se-cockup is about a mile broad, and its direction ſemicircular; in moſt parts there is a ſtrong current which ſets ſometimes 2 or 3 knots; to avoid which, if you ſhould have occaſion to anchor, you muſt make uſe of the ſeveral coves or bays that are found within it; there you will find all ſoft ground, without being in danger of hurting your cables, or loſing your anchors. The entrance on the north-eaſt ſide is very narrow and rocky, and the little iſland called *Poolo Tonga* lies in the middle of it; but on the ſouth-weſt ſide it is clear, and about $\frac{3}{4}$ of a mile wide between two iſlands called *Poolo Seraſſo*, adjacent to North Poggy, and *Poolo Supaw*, near South Poggy. In this ſtrait are two places where you can get freſh water.

Between Seraſſo and the main there is a paſſage about 20 or 30 feet broad, and the depth of water from 5 to 10 feet. "In this ſtrait," obſerves Mr. *Forreſt*, who was there in 1757, "the water, being as ſmooth as glaſs and perfectly tranſparent, affords a moſt delightful entertainment, for the bottom is covered with an abundance of curious coral of many colours, white, brown, blue, and yellow, and of great variety of ſhapes, with numbers of fiſh friſking amidſt thoſe vary-coloured branches."

Oppoſite to the opening of the paſſage to the ſea, lies a ſmall iſland on which is a rock appearing like a thatched-houſe when ſeen from the S. W. and on which the ſea is breaking with great force; thence the coaſt extends about 10 miles to the Weſt; and the ſoutherly ſwell breaks upon it with uncommon violence, raiſing a ſurf perhaps no where to be equalled.

On the weſt coaſt are ſeveral ſmall iſlands, among which you may anchor abreaſt of the village of Se-laubo-laubo.

According to the report made by the Rajah of this iſland to Mr. *Forreſt*, this iſland contains about 800 inhabitants, and North Poggy has pretty near the ſame number.

To the ſouth-eaſtward of the Naſſau iſlands lies the iſland Engano, or *Deceit Iſland*, in 5° 35′ ſouth latitude, and 102° longitude Eaſt from London; it is diſtant from the coaſt of Sumatra about 20 leagues, pretty large, and of a triangular ſhape; and the inland country high. To the eaſtward of it near the ſouthernmoſt point are four ſmall iſlands

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iſlands which form an exceeding fine bay, where you have clear ground, good anchorage, and ſhelter from any wind for ſhips of any burthen. One of theſe iſlands is ſandy, or at leaſt of a ſandy ſoil, and there veſſels may go in, and careen or repair with great facility, having 4 fathoms cloſe to the ſhore, fine clear ground. There are three good channels to enter and come out ſafely and eaſily with any wind that blows; there is alſo fine running water, plenty of fine wood for building or repairing ſhips, and abundance of fine fiſh, yams, and cocoa-nuts.

This iſland is well inhabited; the people are of the ſame colour with the Malays, but of a ſtouter make, more active, and go quite naked: their arms are only wooden lances, with which they alſo ſtrike fiſh.

## THE STRAITS OF SUNDA.

### INSTRUCTIONS FOR SAILING THROUGH THE STRAITS OF SUNDA.

By Monſieur D'APRE's.

WITH SEVERAL ADDITIONS, &c.

THE FIRST POINT of the ſtraits (or *Tanjong Alang-ajang)* on the Java ſide, lies N. N. W. 3 leagues from JAVA HEAD; its extremity is remarkable by a rock with a tree upon it which navigators call THE FRIAR, and whoſe name is alſo given to the point. The coaſt between this and Java head, forms a bight, all along which are ſeveral high rocks, reſembling at a diſtance boats under ſail. To the northward you deſcry the land of *Poolo Pannaitang*, or PRINCE'S ISLAND, whoſe ſouth-eaſt part makes the north coaſt of a little ſtrait, by ſome called PRINCE'S STRAITS; the Dutch call it *Behouden*, or the *Safe Paſſage*; by this you enter the ſtraits of Sunda. At the ſouth point of this iſland, and 2 leagues N. W. by N. of the Friar, are ſeveral great rocks named the *Carpenters*, extending W. S. W. about a $\frac{1}{4}$ league; they are almoſt cloſe to each other, and ſteep-to; two ſhips length from them you have no ground at 40 fathoms, and 50 or 60 cloſe to them. All the coaſt of Prince's iſland is equally bold.

"To anchor off Prince's iſland, you bring the high hummock S. W. by W. and the north-weſt part of the iſland N. N. W. in 38 fathoms, ſandy ground. For watering, the ſame hummock is brought N. W. by N. then you will open a ſmall ſandy bay by a large old tree, near to which is a ſtream of freſh water; the higher up, the better it is."

One league Eaſt of the Firſt point, in a bay on the coaſt of Java, you find the little iſland *Cantaye*, called by the Engliſh MEW ISLAND, where ſhips often put in for wood and water. In anchoring at this place be cautious of a ledge of ſunken rocks, which bear about N. by W. one mile from the watering place. Some Charts lay down a bank projecting to the weſtward, from the north point of this iſland, but an experienced navigator, *M. le Chevalier de*

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*de la Boiſſiere*, affirms that ¼ a quarter of a league from this point he found 6 ½ fathoms; therefore you need not be two fearful of turning it in this part.

Between Mew iſland and the Firſt point, there lies a great rock or iſlot.

As the winds during the Monſoon of April and November generally blow from S. S. E. to E. S. E. to enter theſe Straits you muſt keep the coaſt of Java on board, and go as near the Friar as poſſible; this rock is ſafe, and there appears no danger within a cable's length of it. When you are near it, and it bears N. N. E. you may perceive beyond it, in the ſame direction, a very high hill, like a ſugar-loaf, upon the iſland Cracatoa; then the eaſt point of Prince's iſland, whereon there is another peak, bears a little more northerly.

Thoſe who intend to put in at Mew iſland, as ſoon as they have paſſed the Friar, ſtand to windward to round the north part of this iſland, at whoſe extremity is a great ſteep rock, but no danger about it, it being ſeparated only by a little channel. To facilitate your boats in wooding and watering, you may anchor between this little iſland and the Coaſt of Java, in 18 fathoms, ſandy ground; its point bearing between the N. W. and Weſt, at the diſtance of ¼ a league.

MEW ISLAND is not inhabited: the huts or villages are on the iſle Java, and a good way from ſhore. The refreſhments to be had at this place are turtles, fowls, and cocoa-nuts, which the inhabitants of Prince's iſland bring in their proas on board the ſhips; theſe commodities are generally ſcarce and ſold at an immoderate price. Upon Mew iſland is a ſtone with the arms of the States General cut thereon, and an inſcription ſetting forth that they have taken poſſeſſion of it. You get wood on this iſland; and water oppoſite to it, upon Java; it falls in caſcades down the hill by the ſea ſide, and is the only water you can eaſily get hereabout.

Captain *Carteret* anchored at Mew Iſland in 1768, and we cannot forbear tranſcribing the account he has given of this place.*

" September 20th we anchored on the ſouth-eaſt ſide of Prince's iſland; and the next morning, I ſent out the boat for wood and water: however we could not get a ſufficient quantity to complete our ſtock, for there had not yet been rain enough to ſupply the ſprings, the wet Monſoon having but juſt ſet in. At this time we had the wind ſo freſh from the S. E. which made this part of the iſland a lee-ſhore, that I could not get under ſail till the 25th, when, it being more moderate, we weighed, and worked over to the Java ſhore.

" In the evening we anchored in a bay called by ſome Mew † BAY, and by others *Canty Bay*, which is formed by an iſland of the ſame name. We had 14 fathoms water, with a fine ſandy bottom. The peak of Prince's iſland bore N. 13° W. the weſternmoſt point of Mew iſland S. 82° W. and the eaſternmoſt point of Java that was in ſight, N. E. Our diſtance from the Java ſhore was about 1¼ mile, and from the watering place 1½ mile.

" Mew Bay is the beſt place for wooding and watering of any in theſe parts: the water

* Account of the voyages for making diſcoveries in the ſouthern hemiſphere, &c. drawn up by Dr. *Hawkſworth*. Vol. I. p. 660.

† In the original it is called, by miſtake, *New Bay*.

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is extremely clear, and so good that I made my people stave all that we had taken at Batavia and Prince's island, and supply it from this place. It is procured from a fine strong run on the Java shore, which falls down from the land into the sea, and by means of a hoase it may be loaded into the boats, and the casks filled without putting them on shore, which renders the work very easy and expeditious. There is a little reef of rocks within which the boats go, and lie in as smooth water, and as effectually sheltered from any swell, as if they were in a mill-pond; nor does the reef run out so far as to be dangerous to shipping, though the contrary is affented in *Herbert's Directory*; and if a ship, when lying there, should be driven upon the shore, she may with the greatest ease run up the passage between Mew island and Java, where there is sufficient depth of water for the largest vessel, and a harbour in which, being land-locked, she will find perfect security. Wood may be had any where either upon Java or Mew island, neither of which, in this part, are inhabited."

It is necessary, in this season, to prefer the LITTLE CHANNEL between the Coast of Java and Prince's Island, or *Bekouden Passage*, to the GREAT CHANNEL northward of this island; for in making use of the latter, it would be exceedingly difficult, on account of the winds which are then blowing, to gain the Coast of Java: you should keep this coast on board, not only to avail yourself of the winds, but also to get anchoring ground in case of a calm, and a contrary current, which advantage cannot be expected on the Sumatra coast.

If some ships, after falling to leeward of the Straits of Sunda, have been lucky enough to re-enter through the Great Channel, they have lost much time in beating against winds and currents, and this is enough to prevent your making choice of that channel.

When you fail from Mew island, keep along shore as far as *Welcome* or the SECOND POINT (*Tanjang Gookoolang*), which may be rounded at $\frac{1}{4}$ of a league distance, and even nearer upon occasion. Within the point you will descry WELCOME BAY, with several islets at the bottom; it extends as far as Pepper bay, or more properly *Pepper point*, the THIRD POINT in the straits (*Tanjang Lussong*), which lies 6 leagues N. E. by E. $\frac{1}{4}$ E. from the Second point. To the E. N. E. of this Second point there is a bank upon which an English ship ran aground, and those who are obliged to turn it in this part must proceed with great caution: it has but 9 feet water in some places, stretching to the E. N. E. and W. S. W. two cables' length, and one in breadth. When on this bank the northernmost peak on Prince's island is in one with the Second point, bearing W. N. W. about 5 miles, and Pepper, or the Third point, N. E. $\frac{1}{4}$ E. about a cable's length N. N. W. from it you have 19 fathoms.

When you are to the northward of Welcome, or the Second Point, steer N. E. for the FOURTH POINT, which lies about 14 leagues therefrom on this point of the compass. Having sailed about 9 leagues, you may perceive to the N. E. by N. *Poolo Somgiang*, an island of a moderate height and very uneven, which navigators have called THWART-THE-WAY, and also MIDDLE ISLAND, because it is nearly so between the coasts of Java and Sumatra, which in this part, the narrowest of the straits, are distant only 6 or 7 leagues. This island is about 4 miles long N. E. by N. and S. W. by S. and has a reef which projects a little at its south point.



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Mew Iſland being unable to ſupply ſhips that ſtand in need of proper refreſhments, or whoſe condition wants repairing, thoſe who are ſo circumſtanced will do well to anchor at SERIGUY, to the north-eaſtward of Pepper Bay, at the foot of ſome high mountains which are on that ſide.

To gain this place, having paſſed the Second point of the Straits, ſhape a courſe toward the Third point, which is more extenſive than the other, forming ſeveral little bays, and containing about three leagues in circuit. Within Pepper Bay lies an iſlot, to the north-weſtward of which are breakers that render its approach dangerous, as is the whole bay.

When you are off Pepper, or the Third point, about a league diſtant, you ſee the little iſland Seriguy* bearing E. by N. which, from this ſituation, is confounded with the coaſt of Java near it. Seriguy may be known by ſeveral great trees upon it, in ſome places thick, in ſome others ſcattered and leſs confuſed. In ſailing toward this iſland, you muſt take care to keep it always on the ſtarboard ſide, and to anchor about $\frac{3}{4}$ of a league N. N. W. thereof: you will then be about the ſame diſtance from Seriguy, on the coaſt of Java, under the declivity of the ſecond hill in Pepper Bay; this village has many inhabitants, and a market every day. The governor, who reſides there, is dependent on the king of Bantam, and all the neighbouring country belonging to that prince, the Dutch keep only the trade in their hands; the people are very civil, but ſelfiſh and cunning; they will buy every kind of goods, provided you ſell them exceſſively cheap, and take in exchange their commodities at an extravagant price. You may ſet up tents, and ſend your ſick aſhore upon the iſland. There is a reef ſtretching about a mile to the northward, and going thence as far as the coaſt.

It is about $4\frac{1}{2}$ leagues N. by E. from Seriguy to the FOURTH POINT *(Tanjong Ciecorang,)* and the land along ſhore is full of cocoa-nut trees, which are the ſtaple of this country. In ſome places, eſpecially beyond the village of Negery, there are ſeveral breakers, the fartheſt of which reaches $\frac{1}{2}$ of a league from the ſhore. Having weighed from Seriguy, keep about a league off ſhore: notwithſtanding the irregular ſoundings, which increaſe farther off, there is good anchoring ground in 20, or at moſt 30 fathoms; therefore keep within that depth, in caſe it ſhould fall calm, or you have not wind enough to ſtem the current, which generally runs to the ſouth-eaſtward in this ſeaſon.

" When you are off the Fourth point, and before you come the length of it, obſerve that in going up the channel of Bantam, two other points being almoſt in one from N. E. by E. to N. $\frac{1}{4}$ E. the Button N. N. E. $\frac{1}{2}$ E. Thwart-the-way N. $\frac{1}{2}$ E. Cracatoa Weſt; at which time a bluff tree on Java ſhore bears S. E. by E. diſtance 3 miles; in 10 or 12 fathoms, there is a ledge of rocks inſhore, and from theſe rocks a ſand runs off $\frac{1}{2}$ mile, where the *Catharine* was loſt."

The Fourth point has nothing remarkable, except that beyond it the coaſt runs about $1\frac{1}{2}$ league to the eaſtward as far as *Anjer* or ANJERE. The principal village, to which this

* Or Seringen, called by the natives *Poolo Papalé*; the anchorage is in 6 fathoms.

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name has been given, is ſituated near the ſea ſhore about 2 miles on this ſide of the point, and will ſupply you with buffaloes, hogs, fowls, and ducks, if you are ſhort of proviſions. You will be oppoſite this place when Middle iſland is in one with the high land of Sumatra about Hog point; but obſerve that there is no holding ground between the two points above mentioned, and that a ſtrong current is ſufficient to drive you.

" The following remarks on Anjere road were made by the ſhip *Raymond*, Captain *Henry Smedley*, in 1785; ſhe laid in 9 fathoms, Anjere point flag-ſtaff bearing S. by E. $\frac{3}{4}$ of a mile from the anchoring ground. The watering place lies above $\frac{3}{4}$ of a mile W. by S. from the flag-ſtaff; the water is got with much trouble, the mouth of the river being full of rocks, and the landing dangerous."

N. N. E. $1\frac{1}{2}$ league from Anjere point, and at the ſame diſtance E. S. E. of the ſouth part of Middle iſland, lies a little round iſlot covered with trees, called the CAP*, and N. $\frac{1}{2}$ W. 7 miles from it lies another like it, but larger and higher, which is named the †BUTTON.

As from Anjere point, till you are paſt theſe two iſlots, there is no good anchoring but in very deep water, it will not be prudent to leave the coaſt of Java to go between them, but with a freſh breeze, well ſet in, and not, as ſeveral ſhips have done, at the firſt appearance of wind, which ſeldom laſts long enough to gain the anchorage to the northward of St. Nicholas or Bantam point, or about North iſland. Without this precaution ſhould it prove calm, you are driven to and fro by the currents, which hereabout are exceedingly rapid, the narrowneſs of the channel through which they run adding to their velocity.

" There is no good anchoring ground," obſerves Captain *Smedley*, " from Anjere point till you bring St. Nicholas point to bear S. by E. or South; then you may anchor in 17, 15, or 14 fathoms, clay ground.—Between the Cap and the Button, there are from 40 to 45 fathoms, bad anchoring ground. A current ſets from 3 to $3\frac{1}{2}$ miles *per* hour, upon the ſprings to the Weſt and S. W. in the S. E. Monſoon, and from Eaſt to N. N. E. in the N. W. Monſoon.

To the north-eaſtward of the Cap, a bank extends along the coaſt of Java, which they call BROUWER'S SAND; it is very dangerous, as it ſhoals ſuddenly. The *Harriſon's* long boat was on it in $1\frac{1}{2}$ fathom, with 4 or 5 fathoms within a caſt all round the ſand; the Cap then bore S. W. $\frac{1}{2}$ S. Thwart-the-way, or Middle iſland W. by N. the Button N. W. $\frac{1}{2}$ N. the point of an iſland near the ſhore, which ſhut in Bantam point, N. by E. and a very little iſland cloſe inſhore E. N. E.

" When you are near the Brouwers Sand, you will ſhut the Cap with Anjere point; and then you may be ſure you are not above a mile from the edge of the bank."

Whether you ſail from Anjere point, or any place on this ſide of it, you muſt always leave the Cap to the ſtarboard, and ſail between it and the ſouth point of Middle iſland;

* By the French *le Bonnet*, or *la Petite Toque*.
† The French call this *le Grande Toque*.



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then you paſs the Button on the eaſt ſide, at what diſtance you think proper. About a mile off the ſouth-weſt part of the Button, there is a rock, 14 feet under water, upon which an Engliſh ſhip damaged her keel. Navigators were a long time ignorant of this danger, ſeveral having ſailed on all ſides of this iſland, without perceiving it; whence it is ſuppoſed to be not very extenſive. There is alſo an account of one danger with 17 feet water on it, bearing from the Button N. W. by W. 2 miles.

ST. NICHOLAS POINT, called alſo BANTAM POINT, bears E. ¼ N. 3 leagues from the Button. It ſeems unneceſſary to come to this point, unleſs upon the appearance of an approaching calm, to ſecure convenient anchorage.

## DIRECTIONS FOR SAILING FROM THE STRAITS OF SUNDA TO THE STRAITS OF BANCA.

### By Monſ. D'APRÈS, &c.

AFTER paſſing the Button, ſteer N. N. E. to get ſight of the Two BROTHERS (called alſo the *Two Siſters*,) 17 leagues from it, on this point of the compaſs, and in latitude 5° 13′ South. Theſe are two ſmall iſlands near each other and of an equal ſize and height; they may be ſeen 6 or 7 leagues, rather by the height of the trees planted thereon than by that of the land; when they bear N. by E. and S. by W. they are in one, they are not above 6 or 7 leagues diſtant from the coaſt of Sumatra.

From each end of the Two Brothers runs a reef which extends half a quarter of a league North and South; and though the ſame reef encompaſſes alſo the eaſt and weſt coaſts, you may approach them, eſpecially the latter, within ¼ of a mile, to the weſtward, without any danger, and have 10 or 11 fathoms. It is improper to keep at too great a diſtance from them, in order to avoid two ſhoals, the principal of which, called the SHAHBUNDER, from the name of a Dutch ſhip that narrowly eſcaped being wrecked here, lies 7 miles W. by N. ¼ N. of the ſouthernmoſt iſland: the ſhip *Jupiter*, commanded by M. *Deſſaudrais du Freſne*, ſtruck upon it returning from China, and had 17 feet of her keel knocked off, which obliged her to go to Batavia to careen. This ſhoal ſeems to be ſcattered in different parts, and to extend farther than is generally imagined.

"The *Sandwich* was aground on this ſhoal in 1749, and the following account is taken from her journal.

"January 27, got through the Straits of Banca. On the 28th in the morning ſaw the Two Brothers; ſteered in for the Sumatra ſhore, and at a ¼ paſt 3 P. M. ran aground on a ſand, when we had the following bearings, *viz.* The northernmoſt part of Sumatra in ſight N. by W. the ſouthernmoſt part S. W. by W. ¼ W. the ſouthernmoſt of the Two Brothers S. E. by E. ¼ E. the northernmoſt E. N. E. eaſterly, diſtance 3 leagues, and from the Sumatra ſhore 4 leagues.

"About 2 A. M. by the water riſing a little, got into 18 feet water, but ſoon after were aground again; we got off a ſecond time, and were ſoon aground a third. By ſounding

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ing round the ſhip, we found the ſhoaleſt water 19 feet, except where ſhe lay, which was only 17 feet; and a little way ahead had 4 or 5 fathoms. Set ſails, ſtarted our water, and threw ſome lumber over board, ſo that with a freſh breeze, and a ſmall ſwell, we drove her fairly over by 10 o'clock. The ſhip thumped exceſſively hard, but made no water. Anchored in 4½ fathoms, having been 19 hours from the firſt grounding to getting clear the third time.

"The 30th, after ſending the boats to ſound, and finding no leſs than 4 fathoms, got again under ſail, and ſtood on for about 5 miles, when the ſhip ſtruck again, but did not ſtick; on which we anchored in 4½ fathoms. The boats were ſent out again to the ſouthward, and to their great joy found the water deepened gradually to 9 fathoms, which they had about 5 miles from the ſhip.

"The 31ſt in the morning we made ſail again, and in a few hours were in deep water."

Two leagues and a half E. by N. of the northernmoſt of the Two Brothers are two little ſand banks called BROUWERS SHOALS, upon which ſeveral perſons, who have been near them, affirm they have ſeen rocks; but as others ſay nothing of theſe rocks, it is preſumed the whole is covered at high water. The ſhoals lie exactly N. W. 4° W. from North Watcher-iſland.

The commander of the *Prince Edward* ſpeaks thus of the paſſage from the Straits to the Two Brothers.

"From Thwart-the-Way, or Middle Iſland, NORTH ISLAND, on the coaſt of Sumatra, bears North 6 leagues, and from this the TWO BROTHERS bear N. E. ½ E. about 14 leagues. You are not to borrow on the Sumatra ſhore under 10 fathoms, and muſt bring the weſternmoſt of the Two Brothers to bear N. E. by E. at about 8 miles diſtance; ſteer but a little wide of it, till it is brought to bear South of you, at ½ mile diſtance; then to the N. E by E. till having deepened your water to 13 or 14 fathoms, you ſhape a courſe for Lucepara, and you will have from 10 to 12 fathoms all the way.

"A Daniſh ſhip in company with us kept to the eaſtward of the Two Brothers, within 1½ mile diſtance; we choſe the other way, which is ſafe, coming no nearer than 1½ mile, in depth 12 or 13 fathoms; the wind being ſcant, and but little of it, we were carried within ½ of a mile of the ſouthernmoſt of the Brothers; ſent the yawl to ſound, ſhe had 11, 11 ½ fathoms within ½ a mile of the ſhore. We came to the eaſtward of theſe iſlands, in our way from China, and no danger but what may be eaſily avoided; the reef which runs out from the ſouthernmoſt of them being above water.

"*Note.* S. S. E. about 2 leagues from the ſouth end of the Two Brothers, lies a SHOAL even with the water's edge, on which the *Dolphin* was a-ſhore."

All the Coaſt of Sumatra, from the Straits of Sunda to the length of the Two Brothers, is high land; and beyond them, as far as the Straits of Banca, it is low and woody. Along this ſhore are the mouths of ſeveral rivers, the moſt conſiderable of which is called Tollongbouang: there lies before it a great bank, the edge of which is near 3 leagues off; and to the northward of it you meet with another, projecting ſtill farther in ſome places, and on which

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which are ſeveral dry patches. This laſt is known by a point, which they ſay is an iſland, whereon are trees higher than in any other place hereabouts; for this reaſon it is called GREAT-TREES ISLAND. Thence to the entrance of the Straits of Banca the coaſt forms a bight, and extends N. by E. 13 or 14 leagues.

Although by the bearings of this coaſt you may conclude the iſland LUCEPARA bears N. by E. 34 leagues from the Two Brothers; yet the irregularity of the currents which run into or out of the Straits of Banca, together with the ebbing and flowing of the rivers along the coaſt of Sumatra, prevent your ſhaping a direct courſe from one to the other. The beſt method is to ſteer by ſoundings as follows.

As ſoon as you have ſight of the Two Brothers, ſhape your courſe ſo as to go about $\frac{1}{4}$ of a league to the weſtward of them in 12 or 13 fathoms, thence ſteer N. N. E. in order to keep in 13, 12, and 10; if it increaſes to 15 or 16 fathoms, it is a proof that you are too far off the coaſt of Sumatra to the eaſtward; in this caſe you muſt borrow more from the North, and even from the Weſt to regain the Sumatra coaſt.

On the contrary, if by means of the tides you are driven too near the iſland of Sumatra, the depth will decreaſe to 12, 10 and 8 fathoms; as ſoon as you have this latter depth, ſtand to the eaſtward, if the wind permits, or anchor, in order to avoid the banks bordering the Sumatra ſhore; the moſt dangerous, and that which projects fartheſt, is off Great-trees iſland before mentioned; it is called *Turtle Bank*. In the day-time and clear weather, you may know your diſtance from this iſland, as well by ſight thereof as by your ſoundings; but in the night-time, or hazy weather, it is neceſſary to keep the lead going.

When you are paſt Great-trees iſland, as you approach Lucepara, the depth decreaſes regularly to $7\frac{1}{2}$ fathoms; then you may ſee it in latitude 3° 13′ South. It is ſmall, and the land is low, but by means of its great trees it can be eaſily ſeen at 6 leagues diſtance. You ſtand toward this iſland till it bears North, about $2\frac{1}{2}$ leagues; and then anchor, if the tide or night will not permit you to go within the ſtraits.

From the ſouth point of the iſland of Banca which lies in 3° 9′ latitude South, a ſhoal extends 5 leagues S. S. W. if for want of following the above direction, namely bringing Lucepara to bear North $2\frac{1}{2}$ leagues, or by any unforeſeen accident you ſhould be forced on that ſide; ſo ſoon as you perceive it, whether by ſeeing the land to the northward, or by the decreaſe of the ſoundings, you muſt ſteer W. N. W. till you get ſight of Lucepara. Theſe marks are unneceſſary when you are to the eaſtward of it, and conſequently South of Banca; it is ſufficient, in order to be certain of it, that you cannot ſee the land to the weſtward.

## REMARKS ON THE SUMATRA OR ZUTPHEN CHANNELS, IN THE STRAITS OF SUNDA.

THE Danes paſs between Thwart-the-way and the STROOM ROCK, and alſo between the Stroom Rock and Sumatra, which is a much narrower paſſage than between Thwart-the-way and Java. This rock lies about $1\frac{1}{2}$ mile N. W. of Thwart-the-way. "I ſhould make no difficulty," ſays the captain of the *Richmond*, "to uſe either with a leading wind, ſteeping

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ſteeping the Sumatra ſhore in the one, and borrowing pretty near Thwart-the-way in the other. I think either of them, with a ſettled gale, is to be preferred to the paſſage between Java and Thwart-the-way, where, in caſe of being ſuddenly becalmed, as we were, you are obliged to let go an anchor in very deep water; whereas, in the other channels, in leſs than half an hour, you are clear of all danger.

"Between the Zutphen iſlands, and the Stroom Rock, within $\frac{1}{4}$ of a mile of the iſlands is the beſt paſſage; the *Richmond* kept within two cables' length of the iſlands, and falling calm ſhe was obliged to anchor in 48 fathoms, ſoft ground; then weighed, and kept the ſaid iſlands cloſe on board, till ſhe was clear of the Stroom Rock."

The ZUTPHEN or HOUNDS ISLANDS, alſo called, *Hog Iſlands*, lie to the eaſtward of *Hog Point* the ſouthernmoſt head-land of Sumatra; Captain *Charles Richardſon* of the *Pigot*, who was here in 1770, gives the following account of them, and of the adjacent coaſt.

"January 17th, at 1 A. M. weighed from North Iſland, keeping along ſhore from 20 to 35 fathoms, with the wind at Weſt. At 1 P. M. came to with the beſt bower in 20 fathoms, mud and ſand; Bantam point bearing E. by S. $\frac{1}{2}$ S. weſternmoſt extreme of Thwart-the-way S. by E. $\frac{1}{4}$ E. The Fourth point of Java S. $\frac{1}{2}$ E. Hog iſland S. W. and North iſland N. by E. $\frac{1}{2}$ E.

"Went on ſhore on ſeveral of the Hog iſlands, heard hogs grunting in the thickets, but ſaw none of them; ſhot ſeveral pigeons: went on ſhore likewiſe upon the main of Sumatra, where we found a very fine river; we had regular ſoundings all the way inſhore, the river bore from N. N. W. from the ſhip. We launched the boat over the bar, and took her up the river about $1\frac{1}{2}$ mile, where we found a very fine populous village, about which were very fine rice fields, with plenty of cattle and fowls: we got one bullock, ſome fowls, and plenty of cocoa-nuts; and I have reaſon to think, could we have ſtayed, we could have purchaſed abundance of proviſions with dollars. The people ſeemed to be entirely unacquainted with Europeans, but were well dreſſed and reſpectable, each man having his *criſs* and turban; it is neceſſary to be upon your guard when among them: this village is called *Tangrea*."

## DIRECTIONS FOR SAILING THROUGH THE STRAITS OF SUNDA, TO BANTAM AND BATAVIA.

### From M. D'APRÈS and Captain GEORGE HAYTER.

IN coming from the weſtward you muſt endeavour to make *Engano* iſland; then with the weſterly winds you ſail towards the ſouth point of Sumatra, from whence this iſland is between 43 and 44 leagues diſtant: this extremity terminates in a low flat point, covered with trees, very near which lies the iſland of Little Fortune, already deſcribed: on Sumatra you may ſee ſeveral high mountains.

Afterward you ſteer ſo as to go to the ſouthward of Cracatoa iſland, and from thence you paſs between Thwart-the-way iſland and the Cap.

If

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If there be any danger * in the channel between Cracatoa and Poolo Beſſee it is at leaſt apparent; and as the winds and currents are favourable in this Monſoon, it will be convenient to paſs theſe iſlands as well as between Thwart-the-way and Zutphen iſlands, eſpecially as this courſe is ſtraiter than that juſt mentioned.

When you are $1\frac{1}{2}$ league to the northward of BANTAM POINT, if you would go to Bantam, you muſt approach POOLO PANJANG, a long and flat iſland, which you may paſs on either ſide; only obſerve its ſouth point is dangerous: the weſt channel has 6 or 7 fathoms water, and the eaſt channel, which is wider, 8 or 9. Having paſſed this iſland, you ſee upon Java a round hill, which, when it bears S. S. W. the town of Bantam is in one with it: you muſt keep on till oppoſite Golgotha hill, off which is the road, where you anchor in 5 or 6 fathoms, mud.

If you go to BATAVIA, when you are a league to the northward of Bantam point, you muſt ſteer E. by S. to go between the coaſt of Java and *Poolo Babee* and *Poolo Tidong*, both lying on the north ſide (Poolo Tidong is alſo called Wappen iſland and Cezaan iſland.) This courſe you muſt continue, till within ſight of the GREAT COMBUYS, bearing thus 15 or 16 leagues from Bantam point, you may come within a mile of the north ſide of it; and ſtill nearer to the LITTLE COMBUYS, ($\frac{1}{4}$ of a league E. by S. of the great one) whereby you will avoid ſeveral ſhoals which lie to the northward.

Two leagues S. E. by E. of the Little Combuys, is the iſland MIDDELBURG, near which is that of AMSTERDAM, which you paſs alſo to the northward; the depth in this track is 13 or 14 fathoms. Having paſſed theſe two, to enter the ROAD OF BATAVIA through the Great Paſſage, ſtand to the eaſtward, to come, within $\frac{1}{4}$ of a league, to the Iſland EDAM, from whence you ſtand to the northward, leaving HOORN ISLAND to the ſtarboard, and that of ENCHUYSEN to larboard. This track will lead you oppoſite Batavia, where you may anchor in what depth you think proper. The road is always full of ſhips, of all the Indian nations who come hither to trade. This city is the chief of the Dutch ſettlements in the Indies, and here the General, as well as the Supreme Council reſide; it lies in latitude 6° 10′ South, and 106° 56′ 45″ longitude Eaſt of London.

"The courſe from Bantam Point to the Great Combuys," ſays captain *Hayter*, "is Eaſt having ſtrict regard to your lead, and to any iſland you can get ſight of. The firſt on your ſtarboard is *Poolo Panjang*; then the two *Madys*; and on your larboard ſide are *Poolo Babee*, then *Wappen Iſland* or *Poolo Tidong*, which, when you get ſight of, you go nigh; you alſo ſee *Men-eaters Iſland* on your ſtarboard bow. The next iſland in courſe is the *Great Combuys* E. $\frac{1}{4}$ S. there is a ſhoal to be avoided, which is called the LYALL SHOAL, from the ſhip *Lyall*, who ſtruck upon it in 1734; it is juſt in the fair way, about the bigneſs of a ſhip and like a ſugar-loaf 16 feet water upon it, and cloſe along ſide of it 5 fathoms. The bear-

* The *Ceres*, homeward bound, in 1777, and the *Bridgwater*, Captain *Parker*, likewiſe homeward bound, in March 1787, went through this channel; they found it very ſafe, and had good ſoundings from 25, 22, 19, to 30, 33, 29, 21, and 18 fathoms, mud, at the entrance and in the middle, between Poolo Beſſee and Poolo Racata to the north of Cracatoa; they found hard ground between Verlatene Iſland to the weſtward of Cracatoa, and the Sea-Rock to the weſtward of Poolo Beſſee.



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ings when on it are the Beacon N. by W. ½ W. the weſt end of Poolo Tidong or Wappen iſland N. ½ E. and the eaſt end N. N. E. ½ E. Great Combuys E. S. E. ſoutherly, and the body of Men-eaters iſland S. E. ½ E. diſtant from the beacon about 9½ miles.

"In ſailing along, keep at leaſt ½ mile birth from the Great Combuys, taking it on your ſtarboard ſide; the eaſt end has a beacon on a ſmall ſandy point, which you may near as much as you judge proper, without danger.

"Keep to the ſouthward until you bring the two Combuys into one; then haul up E. N. E. for a ſmall iſland called *Duffens Iſle* or *Poolo Dapour*, which you keep a very little on your ſtarboard ſide, off your bow-ſprit's end; and by the time that you are a mile, or a little more from *Little Combuys*, look without, and you will ſee two beacons, one on each ſide of you, about 1 mile ½ aſunder, which you go between: and keeping ſtill towards Duffens iſland, until you have got a good birth off the ſouthernmoſt beacon, then haul away S. E. by S. off the Iſlands *Haarlem*, and *Hoorn*, which you may paſs very ſafe at leſs than ½ mile diſtance, keeping them on your larboard ſide. As you draw nearer, coming abreaſt of Haarlem you will ſee a beacon off the eaſt end of *Rotterdam*, which you muſt keep at a proper diſtance. When you come to have Hoorn iſland Eaſt of you, haul up to the eaſtward until you bring the dome of Batavia church S. by E. or South, to avoid a *dangerous ſhoal* on which there might be no beacon, but if it blows a freſh breeze, breakers are to be ſeen on it. This ſhoal bears of Hoorn S. by W. or ½ W. diſtance about 2½ miles; it bears of *Edam* S. W. of *Purmerent* Weſt, or W. by N. ſcarce 2 miles, and when Batavia church bears S. by E. ½ E. the ſhoal and the church are in one.

"If the dome of the church be kept a little to the ſouthward of S. by E. you cannot touch this ſhoal; but your ſafer leading mark is to bring the dome S. ½ E. to South, then you may ſteer directly in for the Road, that you will ſee 2 miles before you come to the anchoring place, in which there is 5 or 6 fathoms, ſafe ground.

## INSTRUCTIONS FOR SAILING INTO BATAVIA ROAD.

*By* M. HORSBROUGH.

"BY whatever channel a ſhip enters Batavia road, no dependence is to be put in ſeeing the beacons, as they are often ſtolen by fiſhermen, and ſometimes carried away by the ſea in the S. W. Monſoon. The *Rhynlandt Shoal*, which bears about N. by W. from the ſhips in the Road, is about the length of a ſhip, with 10 feet water on it, and is in one with *Kuypers Iſland* W. N. W. ½ N. The paſſage frequented by the Dutch ſhips is certainly the beſt between *Onruſt* and Java: in going this way, after getting through between the *Combuys* and *Men eaters* beacon, which is a little to the eaſtward of Men eaters iſland you muſt ſteer to paſs between the iſlands of *Middleburg* and *Amſterdam* and *Oatong Java reef* beacon, which lies on the north part of the reef. Between this beacon and another off the ſouth eaſt point of Middleburg lies the channel which has 8, 9 and 10 fathoms in it. When paſt Amſterdam ſteer to the weſtward of *Schiedam* and *Rotterdam*, alſo to the weſtward of *Onruſt*, and once abreaſt of Schiedam borrow on the reef ſide, which is ſand; you may run along the edge of it in 5



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fathoms; as you go nearer you will ſhoal 4½ and 4, but there are 6 and 7 fathoms mid-channel: by keeping near the reef you avoid the rock, which lies nearly mid-channel to the N. W. of Onruſt.

"After paſſing the ſhips at Kuypers iſland you will ſee the beacon of a ſhoal near the Java ſhore, which you leave on the larboard: ſometimes there is a beacon on the *Purmerent* reef; if you ſee it leave it well to the northward; but ſhould no beacon be ſeen when you are round Kuypers iſland, ſteer for the outermoſt of the ſhipping, and that will clear you of all danger. Perhaps you will perceive ſeveral beacons or ſpots near the Java ſhore, on the north ſide of all which you muſt paſs; if you ſee the Rhynlandt beacon (which you will know by obſerving it to the north-eaſtward) leave it on the larboard ſide, and anchor in the road in 7 to 5 fathoms. Ships do not moor here, the anchors burying, for which reaſon they muſt be ſighted every two days.

"The Paſſage between Amſterdam and Schiedam, and between Rotterdam and *Haarlem* and *Hoorn* is a very good one; the *Anna* went through it twice: after you have paſſed between Ootong Java reef and Middleburg, ſteer to round the ſouth-eaſt part of Amſterdam, then to the eaſtward towards the ſmall low iſland of Haarlem; going to the northward of Schiedam, when near Haarlem, ſteer down betwixt Hoorn and Rotterdam, keeping neareſt to Hoorn, on account of a reef that runs out a ſmall diſtance to the S. E. of Rotterdam. When paſt Hoorn be careful of not hauling too much to the weſtward in ſtanding for the road, for fear of getting too near Purmerent reef, which is of great extent, running out to the ſouthward and eaſtward of the iſland; the water does not break on it, except in a very heavy ſwell.

"Hoorn having been rounded, ſteer S. E. till you bring the dome of Batavia church S. ¼ E. or S. ½ E. then you are well to the eaſtward, and may ſteer direct for the road, as either of theſe bearings will carry you clear between the Rhynlandt and eaſtern reef beacon.

"In coming to the Road through the great channel obſerve the above bearing of the dome and ſteer with it S. ½ E. till near the Road.

"The paſſages between *Leyden* and *Alkmaar* iſlands, and between thoſe of *Edam* and *Enckhuyſen* are all very ſafe, with regular ſoundings through all the iſlands from 8 to 12 fathoms.

"The beacons are not very conſpicuous being generally an old ſtump of a tree, with a piece of board in the form of a croſs on ſome of them.

"Ships bound out or in by the great or Leyden channel, always paſs on the weſt ſide of the beacon, as there is no paſſage to the eaſtward of it for a veſſel of any ſize: this beacon is on with the body of Leyden N. E. ½ N. and is in ſight from the Road of Batavia."

## DIRECTIONS FOR SAILING FROM BATAVIA TO THE STRAITS OF BANCA.

By M. D' APRÈS.

IF from Batavia you are bound to the Straits of Banca you muſt ſteer N. N. W. for the *South*, or *Zuyder Wachter*, (WATCHER by the Engliſh) 10 or 11 leagues from Batavia Road: you may paſs it either to the Eaſt or Weſt ½ of a league. If you go to the eaſtward, you

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you muſt approach it before it bears N. W. in order to avoid a little bank, called by the Dutch *Naſomwer Drooght*, or ſand, about 2 leagues to the ſouth eaſtward. When the *South-Watcher* bears S. E. if you do not chooſe to ſail along the *Thouſand Iſlands*, you may ſtand to the northward, and N. by E. to go wide of them, and paſs between the bank, or ſandy iſland, called *Brouwer's Drooght*, and that of *Prince's Drooght*; the firſt lies about 7 leagues north-eaſterly of the South Watcher, in 5° 12′ north latitude; the other 8 leagues N. W. by W. ½ N. of Brouwers Drooght, in 5° 4′. Being in the latitude of 5°, ſteer a N. N. W. courſe as far as 4° to get into 12 fathoms to the eaſtward of the bank off Great trees iſland, on the eaſtern coaſt of Sumatra. Care muſt be taken to ſound from time to time, to prevent falling to the weſtward of your reckoning; on the contrary, if the ſoundings ſhew, by a great depth, that you are to the eaſtward of it, you muſt ſteer more weſterly than the courſe preſcribed, in order to gain the 12 fathoms, after which you may enter the Straits.

"The BROUWER'S SAND," ſays Mr. *George Robertſon*, "has two dry ſpots upon it; it lies in the direction of N. by E. ½ E. and S. by W. ½ W. 2½ or 3 miles in length, and not more than ¼ mile in width. We ran along the eaſtern edge of it, at the diſtance of 1½ or 2 miles, regular ſoundings, 15 fathoms. The bearings are thus, *viz.* north end of Brouwers ſhoal in one with the North brother S. 64° W. body of ditto in one with the South Brother S. 65° W. ſouth extreme of ditto in one with the South Brother S. 63° W. North Watcher at the ſame time bearing S. 47° E. diſtance from the ſhoal, 3 miles, 15 fathoms."

The journal of the *Enterprize*, who was there, June 10th 1788, ſays, "the above bank (Brouwers Sand) bears, corrected by our run, due north 43 miles from Edam; and the North Watcher N. 20° W. from Edam 52 miles."

## INSTRUCTIONS FOR SAILING THROUGH THE STRAITS OF BANCA.

### From M. D'APRES, &c.

THE STRAITS OF BANCA extend about 35 leagues from S. E. to N. W. The iſland Banca, whence it derives its name, bounds it on the eaſt, and part of the Coaſt of Sumatra on the weſt ſide. This coaſt is very marſhy, and has no other elevation but the trees, the lower part of which, near the ſhore, is waſhed by the ſea, which very often riſes to their tops; and this may then induce you to reckon yourſelf farther from the coaſt than you are in reality. You muſt never approach it too near on account of a mud bank that borders it, extending ½ a league out, and even more in ſome places.

The iſland of Banca is higher; on it are ſeveral mountains, the moſt conſpicuous of which are thoſe of Parmiſſang, and Monopin hill.

The little iſland LUCEPARA before mentioned, lies at the S. E. part of theſe Straits, and forms two channels to enter it; the eaſtern one is very wide, and ſeems to make an exceeding fine paſſage, but is not frequented. It has been ſaid that this is the beſt paſſage, the leaſt depth being 8 fathoms; however it requires confirmation by experience, for all ſhips, to this day, prefer the weſtern channel, between the Coaſt of Sumatra and Lucepara, which is about 3 leagues broad. Navigators ſhould be particularly careful in this part, on account



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of its ſhoalneſs, and the moſt prudent generally ſend their boat a head to ſound; but without this precaution it will be eaſy to determine the track that is to be kept in this paſſage, with regard to Lucepara and the Coaſt of Sumatra.

Obſerve that the tides are very ſtrong and irregular throughout the Straits of Banca: when the wind blows from the Eaſt, at the full and change of the Moon, the ebb ſets to the northward, for 16 hours, while the flood laſts only 8 hours.

In common tides there are two floods and two ebbs in 28 hours, whoſe duration is in ſome ſort regulated by the wind. The flood laſts 6 hours and the ebb 8 hours; or the flood laſts 5 hours and the ebb 9 hours; it is to be obſerved that the rapidity of the flood always depends on the force of the S. E. wind. The contrary happens in the Weſtern Monſoon, and then the flood is ſtronger than the ebb; in this caſe the flood, in common tides, laſts 8 hours, the ebb 6 hours, and the velocity of the current is proportional to the ſtrength of the wind blowing from the N. W. quarter. It is neceſſary you ſhould attend to theſe different changes, and anchor when there is not wind enough to ſtem a contrary tide.

When you ſet out from the place where Lucepara bears North, diſtance about 7 or 8 miles, there you have convenient anchorage, and can wait for the return of day-light and a favourable tide. Firſt ſteer W. N. W. till you bring Lucepara to bear N. N. E. then N. W. till it bears N. E. In this track you find 5 ½ or 6 fathoms, ſoft mud. If your ſoundings are hard ſand, which, in this paſſage always denotes being near the banks that encompaſs Lucepara, then you are to keep more to the weſtward, in order to get into mud ſoundings, which are thoſe of the right channel.

Lucepara iſland bearing N. E. ſteer N. W. by N. till it bears E. N. E. then N. N. W. and, if neceſſary, N. by W. ſo as to give the coaſt of Sumatra a good birth, which you muſt then keep at a league, or 1 ½ league diſtance. This will carry you clear of the dangerous bank which lies N. W. by N. of Lucepara, and S. E. of the Firſt point, and whoſe breakers you may ſee at low water: this is the bank on which the *Cruttenden*, captain *Bowland*, was in 1765. It extends about N. W. and S. E. 2 leagues, with only 10 feet water upon it: another ſmall ſhoal lies to the weſtward of the middle part of the Cruttenden Bank, and about South from the north weſt part, which is the ſhoaleſt. There is alſo a third ſmall bank, to the ſouthward of theſe, on which captain *Charles Newton*, in the *Concord*, was aground. When Lucepara bore S. S. E. ½ E. and the Firſt point of Sumatra N. N. W. they had ſoundings as faſt as they could heave the lead, from 10, 7, 4, 3 fathoms to 10 feet.

" To avoid theſe ſhoals with certainty, come no nearer than 3 or 4 miles from Lucepara, till you are abreaſt of it; then ſtand N. W. by N. till you are within 2 or 2½ miles of the Sumatra ſhore, and keep that diſtance, or rather leſs, till you are paſt the FIRST POINT of the Straits (of which there are four on the coaſt of Sumatra); at this diſtance you will have 5 fathoms, which is a good depth to preſerve. Be ſure not to be ſo far off the Sumatra ſhore as to deepen your water above 6 fathoms, nor nearer that ſhore than ½ leſs than 4, and take care not to be deceived, in allowing too great or too ſmall a diſtance either from the Sumatra ſhore, or the iſland, but keep ſo as never to bring Lucepara to the

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the ſouthward of S. E. by S. till the Firſt point bears N. W. by W. for the *Kent* was in ¼ leſs than 3 fathoms, when the iſland bore S. S. E. and the *Eyeleſs* boat was on the edge of one of the rocks, when Lucepara bore S. S. E. ¼ E."

" You muſt come no nearer," ſays M. D' *Après*, " the Coaſt of Sumatra than one league, if you would not riſk to run upon a bank which borders this coaſt, and whoſe edge runs out ½ league or more in ſome places. Several ſhips, by ranging the coaſt too near, having met with this accident, have not been able to get off again without great difficulty.

As you near the Firſt point the depth increaſes to 12 fathoms, mud; and beyond that it is greater.

When Lucepara bears Eaſt of you, if the weather be clear, you may eaſily perceive the mountains of Parmiſſang, on the iſle of Banca, which lie N. by W. of the Firſt point of the Straits.

According to the obſervation of ſeveral navigators, the depths in the paſſage between Lucepara and Sumatra vary at different times, at the ſame bearings off Lucepara, and at the ſame diſtance; and upon examining ſeveral journals, continues M. D' *Après*, notice has been taken of this inequality. Several ſhips found 4 fathoms in the ſame place (according to their eſtimation) where others had found 6 at another time; this may be occaſioned by their being nearer to, or farther from, the time of high water; or by the freſhes of rivers occaſioned by frequent and heavy rains; or by the difference of judgment in the eſtimation of their diſtance from Lucepara. On the coaſt of Sumatra, where it is very ſhoal, if inſtead of 2 leagues W. S. W. you are 3 ½ leagues from it, it is not ſurpriſing to find leſs water; when this happens you muſt ſtand toward Lucepara for deeper water.

Thirteen miles north of the Firſt point, is Point Lalary on the Iſle of Banca, from which runs a ſhoal where the *Hindoſtan* grounded, May 7th 1798; you can come upon it at any place, except that ſpot, and the leaſt water there was 3½ fathoms. When the ſmall hummock is in one with the firſt gap of Parmiſſang hill, you may croſs it ſafely in 5 fathoms; and when it is open to the weſtward of Parmiſſang hill you will carry more water, as you are then to the eaſtward of the ſhoal. This ſhoal, concludes M. *Stevens*, runs nearly N. W. by W. and S. E. by E. a very good mark for it one way is a ſmall hummock near the ſhore on about one third of the weſtern point of Parmiſſang hill then bearing N. 3° ½ W. *per compaſs*."

It is reckoned 9 ½ leagues N. W. by N. from the Firſt point of theſe ſtraits to the Second. The coaſt between forms two falſe points, ſo called to diſtinguiſh them from the principal ones. This part is alſo bordered with a mud bank which projects a mile, ſo that the coaſt may be ranged at 2 miles without danger. The depths, though unequal, are generally about 15, 18 and 20 fathoms.

Upon the extremity of the SECOND POINT is a tree which ſeems a little ſeparate from it; ſo that at firſt ſight you would take it for a ſhip at anchor. The coaſt beyond it forms a great bight; this ſeems to have eſcaped the notice of hydrographers, as well as the mud bank which fills up the whole extent. Several navigators have imagined, that off this extremity was a little bank, between which you might paſs; but ſounding myſelf from the

Second

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Second point as far and farther than this pretended bank, I found the bight was very ſhoal, and moſt of the bank might be ſeen at low water. The courſe from the Second to the Third point was N. W. $\frac{1}{4}$ N.

We muſt however quote the navigators who contradict the aſſertion of M. D' *Après*.

" There is no danger," ſays Captain *Hayter*, " on the Sumatra coaſt, till you are paſt the Second point, between which and the Third point, there is a ſhoal on a little ſpot; ſome ſay there is water enough upon it for any ſhip; but to avoid it, ſteer from it directly over for the high land of Quala-Banca, which will be about N. by W. and keep rather more than mid-channel over, not under 5 fathoms, till you have the body of the higheſt part of Quala-Banca E. by S. of you, the ſaid ſhoal lying about Weſt therefrom.

" Then haul away for the Fourth point, for if you do not get hold again of the Sumatra ſhore, the outſet of the rivers may drive you over too far on the Banca ſhore, where there are dangerous reefs of rocks, 3 or 4 miles off the point, that run down from Monopin Hill; therefore, if in the night it ſhould fall calm, it is the ſafeſt way to anchor."

" The ſhip *Lynn*, in 1733, fell in with a ſhoal bearing N. E. by E. about 2 cables length diſtance, at which time the Second point of Sumatra bore W. S. W. about 7 miles; when they had 7 fathoms; the caſt before had no ground with the hand-lead. They took this ſhoal for the ſame as that mentioned above, though they were nearer the Banca than the Sumatra ſhore; and moſt ſhips may go to the weſtward of it, when they imagine they go to the eaſtward: in the day-time it is viſible enough, and eaſily avoided, but it muſt be dangerous in the night.

" The maſter of a Dutch ſloop gave an account, on board the *London* in theſe Straits in 1738, that he had been upon a rock, with 20 and 16 fathoms all round it, which lies to the eaſtward from the Second point, about mid-channel, but rather nearer Banca; likewiſe of a ſand laid down in the Dutch draughts between the Third and Fourth points, near the Banca ſhore, which, he ſays, lies near the mid-channel."

Within the Second point, about $\frac{1}{4}$ league to weſtward, there is a great tree, encompaſſed with ſeveral others of an equal height; but as this is taller than the reſt, it looks like a tree left to grow in the middle of a clipped hedge; it ſerves as a mark to know the Second point, in coming from the northward, and to avoid the extremity of the bank which lies N. by W. $\frac{1}{4}$ W. of this tree.

From theſe remarks you ſee evidently, that it is not only dangerous to range the Coaſt of Sumatra between the Firſt and Second points, but alſo to ſail direct from one to the other.

The propereſt courſe, after paſſing the Second point, is to ſtand toward the largeſt of the Nanca iſlands, which then bears about N. by E.; at this bearing its two extremities appear low, and the middle ſomewhat higher. In this track you have 18 to 20 fathoms, which decreaſe to 15: as you near the iſlands, you are to keep in this depth.

If you are in want of freſh water or wood, you may be conveniently ſupplied therewith on the largeſt iſland. As there are, between theſe iſlands, ſome dangers near the water's

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water's edge, you muſt anchor without all, and not enter their channels without having firſt proved them.

There are two places where you may water on POOLO NANCA, which lie North and South from each other. When you are at the northern mouth the ſmall Poolo Nanca bears W. S. W. and a ſmall negro-houſe on Great Nanca E. S. E. $\frac{1}{4}$ a league diſtance: the water is better at this place, but it is rather difficult to come at, on account of the ſtones with which it is ſurrounded.

The ſouth ſide of the ſame iſland is cleaner, and there are three ſmall ſandy coves where you can land; from the ſouth-eaſt point to the weſt point, the diſtance is about $\frac{1}{4}$ a league, but there is no freſh water on that ſide. On the weſt ſide, a reef is projecting about 2 cables length, with rocks above and under water, and not more than 2 or 3 feet upon them.

The north ſide has a little leſs than $\frac{1}{4}$ a league in extent, and the watering place lies about $\frac{1}{4}$ a mile from the weſt point: it is eaſily known by a ſmall point near it; and over againſt it, on the Banca ſide, a ſingle rock is ſeen above water near the mid-channel.

The diſtance between this watering place and Banca is about one league. There is about mid-channel, a reef on which the ſea breaks, wherein you ſee ſeveral rocks even with the water's edge; between the iſland and the reef there are likewiſe many rocks under water: in mid-channel, where you find no ſtones, the depth is about 2 and $2\frac{1}{2}$, fathoms.

To go with greater eaſe to the watering place, you muſt range the iſland on the eaſt ſide; and when you have doubled the north-eaſt point you deſcry ſeveral coves with white ſand, but the cove where you water has brown ſand. At low tide you ſee the water running, whereas at high water you cannot perceive it, on account of a great moraſs which is over againſt it, ſo that you muſt be upon the land to find it out.

The whole eaſt ſide of the iſland is eaſy to be approached with boats. You find alſo freſh water near the ſouth-eaſt point, in a ſmall river whoſe opening is ſeen when you range along the ſhore, but it is not ſo good as in the former place.

When you are off the northernmoſt iſland, ſteer by the Third point, and leave the coaſt of Banca, along which are ſeveral dangers, and in general very foul ground.

From the Nanca iſlands, when the weather is clear, you may ſee, to the N. W. by W. the high mountain called MONOPIN HILL, ſituated on the weſt end of the iſle of Banca. Its height ſhews it a good way off, and it is a ſure mark to enter the ſtraits in coming from the northward, or to go out of them when you come from the ſouthward.

The THIRD POINT of the ſtraits, a little higher than the others, is diſtinguiſhed by a beach of red ſand: from this point ſteer W. by N. toward the Fourth point, which lies from it W. $\frac{1}{4}$ N. 20 miles. You ſail a little more northerly than the bearing of theſe two points, to avoid the edge of the banks off the river Palimbam or Palimbang; theſe begin immediately after the FOURTH POINT, about which you often find unequal depths

of

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of 12, 8, and 6 fathoms; this is not to be wondered at, as it deepens amain by ſtanding a little to the northward.

The firſt entrance of a river which ſhews itſelf beyond the Fourth point, is not the true mouth of the PALIMBAMG; but you ſee it ſoon after, as well as the ſecond mouth, which ſeparates in two branches, though this laſt double branch diſembogues itſelf by one mouth in the Straits. The Dutch have a ſettlement 14 or 15 leagues inland; and their chief trade conſiſts in pepper, tutenague, and rattans or ſmall cane.

"To the weſtward of the Fourth point is a bank, on which the *Stafford* (in company with the *York* and *St. George*) was aground: a ſmall ſnow coming by, ran aground alſo. The bearings on board the *Stafford*, while on the bank, were the Third point, being the eaſternmoſt land in ſight, E. S. E. The Fourth point S. E. by E. the weſternmoſt land of Sumatra, in ſight, Weſt; the weſternmoſt land of Banca N. by W. Monopin Hill North, off the Sumatra ſhore 3½ miles. Sending the boat to ſound, found the bank run quite to the ſhore, and to the Fourth point. It is ſoft mud at the edge of this bank, which is hard ſand, and ſo ſteep, that in running acroſs it, in 3 or 4 boats length, had from 7 to 3 fathoms. The *York* in the morning, could not come to the anchor ſhe let go over night."

Four leagues N. E. by N. off the Fourth point, is alſo a dangerous reef formed by ſeveral heads of rocks, encompaſſed with ſand, and juſt above water: Mr. *D' Après* found 20 fathoms water, about a ſhip's length from its edge, S. W. by S. 5 or 6 miles fom this is a bank of 10 fathoms; any one, not appriſed thereof, by ſounding on it, in the night might think himſelf on the edge of the Sumatra bank, and by ſtanding off ſhould be in danger of running upon theſe rocky heads.

The tides run in and out of Palimbam river with great rapidity, eſpecially in the rainy ſeaſons, which cauſe it to overflow greatly; then the water appears muddy round about, ſeveral drifts float along upon the water, and ſometimes even 3 or 4 trees ſurrounded with buſhes, reſembling floating iſlands, which the violence of the torrent drives into the ſea. In ſailing from this river, you muſt guard againſt the force of the flood, which ſets toward the banks, and that of the ebb, which runs toward the Banca ſhore: there the ſoundings are very dangerous; for beſides the different reefs you meet with, there is a conſiderable bank of gravel that extends 1½ league S. W. off the weſt point of the iſland, and near which is a rock with only 9 or 10 feet water.

In ſailing from the Third to the Fourth point, when Monopin Hill bears N. N. W. you muſt ſteer N. W. by W. to range the banks off Palimbam river; but whether by day or night, you muſt not approach them under 8 fathoms. Continuing this courſe, you diſcover to the N. W. the falſe POINT OF BATACARANG, and ſoon after the true one: theſe two points, and the low land which lies at the foot of Monopin hill, 6 leagues to the eaſtward, terminate the ſtraits of Banca on the north-weſt ſide.

"You may ſail ſafely along the Palimbam banks, even in the night, by your lead and a boat on your larboard-bow, up to Batacarang point; and taking care not to go farther from the Sumatra ſhore than 9 fathoms, you cannot come near the FRIDERICK-HENDRICK.

"This

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" This rock riſes in a ſharp point, on which, at low water, there is 9 feet water, and ſits on a maſs of the ſame ſtone, on which are 2¼ fathoms; at neap-tides it ſhews a forked reef on the ſurface of the water. Between this, and the coaſt of Sumatra, the channel is about 7 or 8 miles broad, and the ſafeſt navigation is in 7 fathoms; on no account exceed 10 to the eaſtward, nor come under 6 to the weſtward, keeping always in ſoft muddy ground; neither be deceived by thinking the deeper water the ſafer, for juſt without this rock are 15, and at a very ſmall diſtance 10 fathoms. A Portugueſe ſhip in 1746 was on the rock, and lay a tide; the point of Banca then bore E. S. E. and Batacarang Point W. ¼ N. the ſhip ſtruck faſt forward, and had 4 fathoms abaft.

" By the *Cæſar's* journal, Captain *Mabbot*, who, in 1728, anchored in 16 fathoms within a cable's length of this rock, it lies E. S. E. ¼ S. and W. N. W. ¼ N. with the higheſt part of Monopin Hill, diſtance about 4 leagues; and from Batacarang Point N. N. E. eaſterly diſtance about 5 leagues. He found when he ſounded on it ¼ leſs than 3 fathoms, judging it was then near high water, as afterwards he ſaw the ſea break upon it. *Note*, The flat of the ſouth-weſt hook off Monopin hill, is 4 miles from the ſhore, in a ſemicircular form, about 4 miles in length, but pretty narrow, and deep water between the hook and the main.

" A little before, or when you come up with Batacarang point, about 5 miles diſtance, *viz.* From its bearing N. W. by N. W. by N. and you in 10 fathoms, you haul more to the northward, and preſently ſhoal your water, ſo that when it bears W. by S. ¼ S. you will be in 6 fathoms; then ſteer N. by W. nearly, and you will keep that depth. When you bring the northernmoſt point of Banca to bear Eaſt ſoutherly of you, or E. ¼ S. ſteer away N. by E. or N. by E. ¼ E. which courſe you will find from 7 fathoms gradually increaſing to 14. When Poolo Taya bears N. W. of you about 4 leagues, you muſt ſteer N. N. E ¼ E. 20 leagues, and you will have ſoundings from 18 to 24 fathoms, and then haul in N. by W. and N.N. W. to make Poolo Aor."

We muſt not conclude this article without adding the following remarks from the journal of Mr. *Peter Stuart*.

## To avoid the FRIDERICK-HENDRICK, in coming from the Northward.

" BEING too far from the Sumatra ſhore," ſays the journal, " deepened our water to 9 fathoms, hard ground, but upon hauling S. by W. in 2 caſts had ſoft ground again, (ſhoaling gradually) ſteering in S. S. W. for the Sumatra ſhore in 6 ¼ fathoms, till the weſternmoſt land bore W. S. W. and Batacarang point South, ſhoaled our water very gradually to ¼ leſs than 5 fathoms, although from the bearings we hauled off South—S. S. E.—S. by E. and S. E. above 2 hours with a moderate gale. This flatening ſurpriſed thoſe that were unacquainted with it, though there is no danger as long as you are in ſoft ground. When the fore and weſternmoſt land bears Weſt you will deepen your water ſuddenly to 12 fathoms.

" To avoid the Friderick-Hendrick, people often go ſo near the rocks, as to be un-

 eaſy;

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eaſy; the firſt caſt of their lead ½ leſs than 6, let them ſteer no farther than W. by S. and as long as they keep under 10 fathoms, there is no danger.

" In February, 1758, being ſent from the *Carnarvan* on board a Dutch ſhip, I ſaw from thence the Friderick-Hendrick rock, bearing in one with Monopin Hill E. S. E. 16 fathoms, 4 miles diſtance, and from the Banca ſhore 4 leagues; it appeared a black rock, juſt above water; the maſter of the veſſel ſaid it was only to be ſeen at low water."

The following extract of the journal of the Nonſuch, will not appear improperly tranſcribed at the end of this article.

" Wedneſday 29, (July 1789) Tacked and ſtood eaſtward, Soundings gradual to 16 fathoms and 12, next caſt 7 ½; tacked whilſt in ſtays, 12 fathoms, hard ground; ſtanding S. W. by S. 14, 15, 13, 9, 15 and gradually to 5 fathoms; at two Kd. and ſtood E. ½ S. to 12 fathoms. At ½ paſt 4 Monopin hill E. by S. Battacarang point, on Sumatra, W. by N. tacked in 11 fathoms.

" When juſt trimmed the wind headed us, and the ſhip took the ground forward and ſewed 1½ foot, hove all aback, got out an anchor aft, trimmed ſhip by the ſtern and ſtarted the water forward: ſoundings whilſt aground 2½ fathoms forward, 1½ off the bowſprit, 3½ under the main chain, and 5 under each quarter. Time of tide, young flood.

" At ½ paſt 5 got her off Monopin hill, S. 77° E. diſtance 3½ or 4 leagues from the Banca ſhore 3, and about 4 from the Sumatra ſhore.

" There is another ſhoal with the hill E. S. E. 5 miles off ſhore, explored by Captain *Cox* of the *Charlotte* Snow; that we were on muſt be the true *Friderick-Hendrick.*"

When off ſtood S. ½ W. ſoundings 10, 11, 16 fathoms; then ſhoaled gradually to 12 when we came off the Sumatra ſhore diſtance 2½ leagues S. by W. to Weſt; Banca Shore E. S. E. to E. N. E.: Monopin hill E. ½ N. off Banca 4 ½ leagues. At ½ paſt 10 weighed, and ſtood S. W. ½ 5 fathoms. At 11 tacked, ſtood eaſtward to 12 fathoms. At noon the hill E. ½ N. 5 ½ leagues."

## DIRECTIONS FOR SAILING FROM THE STRAITS OF BANCA TO THE STRAITS OF SUNDA.

FRIDERICK-HENDRICK being paſſed, ſhape your courſe to keep mid-channel, in order to avoid the ſhoals which project, about 3 miles, from the mouths of Palimban river, as well as the tides of that river, for the flood might drive you on the ſhoals, and the ebb on the coaſt of Banca.

When you are paſt the Fourth point, keep along the Sumatra ſhore as far as the Third point, and go within 2 miles thereof: the currents running very ſtrong and uncertain, ſometimes 18 or 24 hours, it is not prudent to ſail here in the night. You ſteer then towards the Second point, keeping 6 or 7 miles off the Sumatra ſhore, in depths from 10 to 20 fathoms. By ſo doing you eſcape the mud bank, which fills up the bay between theſe two points. Take notice of the Tree, which, in ſailing from the northward, eaſily diſtinguiſhes the Second point from every other place upon the coaſt.

Beyond

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Beyond this keep 2 miles off ſhore, as far as the Firſt point; and when paſt it, you ſtand to the ſouthward, ſo as to paſs 2 leagues to the weſtward of Lucepara: at this diſtance you avoid the ſhoals which ſurround it.

Between the Firſt and Second point lies a ſhoal off the Banca ſhore, almoſt mid-channel over; ſo that you muſt keep 2 miles off ſhore, taking care not to come half channel over towards Banca. The principal reef, and that which moſt requires your notice, is ſituated between the Firſt point and this iſland; ſometimes the ſea breaks upon it. The beſt method to avoid it is, after paſſing the Firſt point, not to ſail above 1½ league from the Sumatra coaſt, which lies S. by W.

When Lucepara bears Eaſt, at the diſtance above mentioned, ſteer S. E. to paſs it, and get into deeper water. You are ſometimes obliged to edge to the eaſtward, on account of the tides, which, in coming out of the Straits of Banca, take their courſe toward Great-trees iſland; it being very ſhoal along this coaſt, the acceſs becomes dangerous; it will therefore be neceſſary to keep the lead going.

When you approach the Firſt point of Sumatra, haul in toward it, and as ſoon as you are abreaſt of it 3 miles off, you will ſee Lucepara S. S. E. ½ E. 5 leagues, when you muſt ſteer S. ½ E. till it bears S. E. ½ E. keeping about 3 miles from the Sumatra ſhore; then ſteer South till it comes E. S. E. ½ S. the Firſt point N. by W. ¼ W. and the ſouthernmoſt part of Sumatra in ſight S. S. W. ¾ W. edge over to the S. S. E. towards Lucepara, till it is E. ½ S. or Eaſt, and ſteer S. E. by S. to bring it E. by N. and E. N. E. ſteer again S. E. till you have brought it N. E. 5 or 6 miles; then S. E. by E. to make it bear North and N. by W. and you are clear of the banks. In obſerving well theſe courſes and bearings you will have no leſs than 5 or 4¾ fathoms.

From Lucepara ſhape a courſe towards the Two Brothers, keeping as much as poſſible, after loſing ſight of Lucepara, in depths from 9 to 12 and 13 fathoms: if you find it leſs than 9, as may happen, eſpecially about the ſhoal of Great-trees Iſland, edge a little to the eaſtward; but if you meet with more than 12 or 13 fathoms, near the Two brothers, you muſt haul in to the weſtward. By this means, and often ſounding, you may always be ſure of making the Two brothers; however, you muſt not expect, between theſe iſlands and Lucepara, to find very regular ſoundings; the inequalities are ſometimes conſiderable, but you cannot be deceived if you keep conſtantly ſounding.

On approaching the Two brothers, if you have not a perfect knowledge of them before night, it will be better to anchor, or put about, than hazard the paſſing of them in the dark, and thereby riſk either the running on the Shahbunder, or the other ſhoal lying E. by N. of theſe iſlands, there being no other way to avoid thoſe dangers, than by keeping a proper diſtance from the Two brothers. This accident had like to have happened to the *Worceſter*, Captain *Hall*, they having miſtaken ſome high land on Sumatra for the Two brothers, which at ſun ſet bore S. S. W. but having a ſquall in the night they anchored in 11 fathoms, and at ſun riſe ſaw Sumatra from S. W. by S. to S. ½ W. Had they not anchored, they would have run into danger. Therefore it is proper to have a perfect ſight of them, if you intend ſailing in the night. At firſt ſight, coming from the northward, they appear in one, though two round iſlands, and may be ſeen 6 or 7 leagues. You may ſail as near as



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you pleaſe to the weſtward of them, having 10 or 11 fathoms within $\frac{1}{4}$ of a mile of them. See what has been ſaid before, on the ſame ſubject.

From what has happened to ſeveral ſhips that have made this paſſage, it ſeems as if from Great-trees iſland the currents, at this ſeaſon, ſhould ſet frequently to the ſouth-eaſtward, ſo that ſome have found themſelves on North Watcher iſland, inſtead of the Two brothers. The depth will prevent your being miſtaken, having 15 or 16 fathoms about the former, and only 11 or 12 fathoms near the Two brothers.

Therefore, after you have paſſed the ſhoal of Great-trees iſland, haul in a little to the weſtward, and by keeping in $9\frac{1}{2}$ or 10 fathoms, you will be ſure to make the Two brothers; but if you exceed 11 fathoms, you will ſcarcely be able to weather the Two brothers, but fall in with the North watcher. If in the day-time, and clear weather, you may keep ſight of the Sumatra ſhore, coming no nearer than 9 fathoms, becauſe there is a ſhoal not far off it, which is ſteep-to, from 7 fathoms on ſight of the Two brothers endeavour to paſs them between 2 or 3 miles.

If for want of obſerving this, or by contrary winds, you are obliged to paſs between the North watcher, and the Two brothers, you range the former at a league diſtance inſtead of keeping mid channel by which means you may avoid the ſhoal above mentioned.

Having paſſed the North watcher, you muſt take care of a rock under water, on which the ſhip *Jaſon* ſtruck, in 1742, on her return from China. This rock lies 2 leagues W. N. W. of the little iſland Eſtam, or *Weſtern Iſle*, and about 6 leagues S. by W. from the North watcher. You muſt take care likewiſe of the ſhoal on which the *Dolphin* was aſhore; it is even with the water's edge and lies S. S. E. about 2 leagues from the ſouth end of the Two brothers.

Ships from the Straits of Banca, going to Batavia, generally make this iſland, from whence they ſail along the Thouſand Iſlands, as far as the South watcher 10 or 11 leagues from the entrance of Batavia road.

But being bound to the Straits of Sunda, you muſt ſhape your courſe ſo as to paſs a league to the eaſtward of *North Iſland*, ſteering from the Two brothers between S. W. by S. and S. W. North iſland is pretty even land, of an oval form, and appears at firſt rather low, though it may be ſeen at 7 or 8 leagues. The coaſt of Sumatra to the ſouth weſtward of it is ſhoal, having only 4 fathoms, mud, 2 miles off ſhore; but you may go quite cloſe to the iſland to the weſtward of it, and have very deep water: if you intend watering at North iſland, anchor with the iſland, N. N. E. the middle of the iſlots called the *Three Siſters*, S. W. by S. $2\frac{1}{2}$ miles, the Button, S. S. E. $\frac{1}{4}$ E. the watering place which is a ſandy beach, on the coaſt of Sumatra, will then bear about S. W.

The winds at this ſeaſon, blowing from the weſtward. and the currents ſometimes ſetting out of the Straits, it is neceſſary hereabout to keep on the coaſt of Sumatra, rather than that of Java, in order to enter the Straits of Sunda with leſs difficulty.

You have 20 fathoms a league off North iſland, ſo that if it happens to be a calm, you may anchor near it, for it will not be prudent to lie driving about the Straits mouth. From

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that iſland, or hereabouts, you ſteer to go to the eaſtward of the *Button*. Then you ſail between the *Cap* and the ſouth point of *Thwart-the-Way*, taking care to avoid Brouwers ſand, by not bringing the Cap and Anger point in one.

" There is a ſmall ſhoal, with only 3 fathoms, that lies between the Button and Thwart-the-way. The *Harriſon* ſtruck upon it and knocked off a piece of her main keel: ſhe fetched 4 or 5 ſallies and got off, ſo that it muſt be very ſmall; it bears about S. E. by S. 3 miles from the Button; and the Dutch ſay, there is but 15 feet on it, at low water. From the above account, concludes Mr. *George Robertſon*, I think it would be adviſable not to go between the Button and Thwart-the-way."

As ſoon as you have paſſed the reef, which projects from the ſouth point of Thwart-the-way, to go towards PRINCE'S ISLAND, you keep to windward, without coming near the coaſt of Java, whence it will be difficult to claw off with the winds of the Weſtern Monſoon, which generally are from N. W. This reaſon ſhould alſo prevent your going to anchor at Mew iſland, as the ſhips which want water may be ſupplied at Prince's Iſland.

On the ſouth-eaſt part of Prince's iſland is an high peaked hill, the higheſt land upon the iſland; this hill bearing from S. W. to N. N. W. you have good anchoring ground from 36 to 44 fathoms, about a mile off ſhore: and when it bears from N. $\frac{1}{2}$ W. to W. by N. little more than a cable's length off ſhore, there is from 10 to 30 fathoms, coarſe ſand, with ſhells and coral. Or bring the hummock S. W. by W. and the eaſternmoſt point N. $\frac{1}{2}$ E. and you may anchor in 38 fathoms, fine ſandy ground, about $\frac{3}{4}$ of a mile off ſhore.

The boats go for water about the ſouthernmoſt point in ſight, till they bring the ſaid hummock N. W. by N. then they will open a ſmall ſandy bay, at the eaſternmoſt part of which is a run of freſh water, and a path cut through the wood to the place where you fill (about 100 yards up) very convenient for rolling your caſks; but if you fill below depend upon it your water will be brackiſh, though you fill at low water. But this place has been objected to, as the boats have to row round the point againſt the current, ſo that they can make but one trip a day; therefore ſhips for the conveniency of watering, may anchor right off the watering place, where you are as well defended from the N. W. winds as at the former, and the S. W. winds blow equally on both, unleſs you run in there under 35 fathoms; and then you are in a manner land-locked, which cannot be done off the watering-place. But the conveniency is ſo great, and the hazard ſo little, that you may anchor with the high land bearing N. W. by N. in 35 fathoms, ſoft ground, $\frac{1}{2}$ a mile off ſhore.

Between Thwart-the-way, and Zutphen or Hounds iſlands, to the eaſtward of Hog's point, is a very fine channel to enter the Straits of Sunda, coming from the northward. This channel ſeems advantageous, eſpecially at this ſeaſon, becauſe it affords much better ſhelter from the winds, than that between Java and Thwart-the-way; if you would paſs through it, you muſt ſteer from North iſland, ſo as to range very near Hounds iſlands, which are ſteep-to, that you may anchor there, in caſe of a calm; and when you are be-

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yond the ſouthernmoſt of them, ſteer ſo as to paſs on the ſame ſide of Cracatoa iſland, and then towards Prince's iſland. But be careful of the Stroom rock, and obſerve, moreover when you have paſſed Thwart-the-way, not come too near Hog's point, becauſe off it there are ſeveral rocks under water, which Captain *Hall* of the *Worceſter* ſaw break for at leaſt $\frac{1}{4}$ a mile.

The STROOM ROCK at the north-weſt end of Thwart-the-way looks like a boat turned upſide down; but at high water there is only a ripling to be ſeen over it; the ſame gentleman ſays that you may go very cloſe to the weſtward of this rock. The Stroom rock and the want of anchoring ground in mid-channel render this paſſage difficult; ſo that upon the appearance of an approaching calm, you ſhould not attempt it; but if it ſhould happen, that after having paſſed Thwart-the-way, the current ſhould drive you back thither, you muſt reſolve to anchor, and wait for a breeze; you have 45 fathoms to the weſtward of this iſland 1 $\frac{1}{2}$ league off.

To the north-eaſtward of Thwart-the way there is a rock near the water's edge, on which the ſea breaks: it lies, according to the Dutch, about 2 leagues from the iſland, and W. by N. $\frac{1}{2}$ N. one league from the Button. There is alſo a dangerous rock under water 2 leagues S. S. W. from POOLO CRACATOA.

This iſland, which the ſailors call alſo *Cracata* and *Crocatore*, is remarkable by its peak, and is ſteep-to on the eaſt ſide: it has on the north part a very convenient watering place where the Dutch ſhips often ſtop; there is alſo a Malay town about $\frac{1}{4}$ of a mile from the watering place, or ſmall river, where fowls, goats, and fruits may be procured.

Several navigators have thought to go out of the Straits of Sunda, by the channel between Prince's iſland, and Sumatra. It would ſucceed better than paſſing to the northward of Thwart-the-way; but the winds from North to N. E. which favour this paſſage, are generally of ſhort continuance; and, the way being long, you may be liable, during the ſucceeding calm, to be toſſed from ſide to ſide by the currents, without being able to help yourſelf: beſides in this part, eſpecially to the northward of Prince's iſland, there is no depth for anchoring but very near the ſhore, and the Monſoon wind blowing afterwards, you may, after many difficulties, be obliged to go through the channel between this iſland and Java, by which ſhips are accuſtomed to go out, on account of the winds and currents that facilitate this paſſage.

But notwithſtanding theſe advantages, whenever you ſail from the anchorage at Prince's iſland, or come directly out of the Straits, you muſt keep as near this iſland as poſſible, and avoid approaching Mew iſland, from whence, at this ſeaſon, it will be with great difficulty you get off again. In this manner, having reached the ſouth point, you ſail along the rocks, called *Carpenters*, which project out from its extremity: here is no danger within a ſtone's caſt. Here you often meet with a violent oppoſition between wind and tide, when the ſea raiſes and breaks furiouſly on the weſt point of Java. This proves the neceſſity of keeping the oppoſite ſide, to prevent your being expoſed to evident danger.

GENERAL

# GENERAL INSTRUCTIONS FOR SAILING THROUGH THE STRAITS OF GASPAR.

By Captain JOSEPH HUDDART, December, 1788.

" THESE ſtraits, which lie to the eaſtward of the Iſle of Banca, between that iſland, and the Iſle of Billiton, are named after the Spaniſh captain from Manilla, who is ſuppoſed to be the firſt that attempted to go through them in 1724, though the Engliſh ſhip *Macclesfield* had paſſed the ſame ſtraits in the year 1702. Three principal iſlands are diſtinguiſhed in the Gaſpar ſtraits, *viz.* SALT ISLAND on the Banca ſide, LONG ISLAND near Billiton, and MIDDLE ISLAND, ſo called from its ſituation between the two others; and on each ſide of which is the paſſage.

" There are two dangerous ſhoals to the eaſtward of Middle iſland, and ſcarce 2 miles aſunder, which renders this paſſage more difficult. Captain *Cooper* paſſed between them in 1785, and the *Hawke* and *Royal Admiral* in 1788; but I paſſed to the eaſtward of them both in 1785, which paſſage I ſhould always prefer as the ſafeſt, on account of the ſtrong currents that ſet athwart to the ſouth-eaſtward during the N. E. Monſoon, ſometimes above three knots.

" It appears to me that the moſt commodious paſſage is between Salt and Middle iſlands, through which the *Macclesfield, Sulivan, Hawke,* and *Warren Haſtings*, have ſailed; for there the currents muſt ſet fairer than to the eaſtward of Middle iſland. This paſſage is above ſix miles wide, and that between Middle iſland and Long iſland above 15 miles.

" The ſhoals, I believe, are in general coral rocks, and ſteep-to. That on which the *Warren Haſtings* was a ground lies N. N. E. about 14 miles from the north-eaſt point of Banca, and W. by N. $\frac{1}{4}$ N. 8 miles from Gaſpar iſland, according to Captain *Larkins's* journal. I paſſed very near it in 1785, and ſaw very ſtrong riplings. The limits of this ſhoal are uncertain, but it does not extend much farther to the northward, as the *Warren Haſtings* went off to the N. E. and then ſteered to the weſtward and ſouthward.

" The ſhoal on which the *Warren Haſtings* touched to the eaſtward of Salt iſland, appears to lie about $3\frac{1}{4}$ miles N. N. E. nearly from that iſland, according to Captain *Larkins's* remarks and bearings off the rocks to the ſouthward of the ſhip at anchor. The ſouth end of Banca and Salt iſlands appears broken land, and very probably may be ſmall iſlands, as I was at too great a diſtance to determine it.

" Ships outward bound to China, intending to go to the eaſtward of Banca, may ſteer for Middle iſland, wihch bears from the Two Brothers N. 23° $\frac{1}{4}$ E. diſtance 49 leagues, keeping in a fair way between Salt iſland and Sandy iſland, which lies about 5 miles S. E. by S. from it; they may ſail equally ſafe on either ſide of Middle iſland: but if you intend to go to the eaſtward of it take Sandy iſland cloſe on board, leaving it on the ſtarboard hand. It is a ſmall low iſland, the weſternmoſt of thoſe groups which lie to the ſouth-eaſtward of Middle iſland. I paſſed within $\frac{3}{4}$ of a mile of the ſandy beach, on the weſt-ſide of it: it ſeems a likely place for turtle in the ſeaſon of laying their eggs. Having

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ing paſſed this Sandy iſland, bring it to bear S. W. by S. and keep it ſo, and nothing to the ſouthward; it will take you clear to the eaſtward of the ſhoal, which you will eaſily perceive by the colour of the water. Having paſſed this ſhoal you will raiſe Gaſpar iſland from the deck, bearing about N. by W. to which you may direct your courſe, and ſail midway between Gaſpar iſland and Tree rock or iſland, ſteering about N. by W. till Gaſpar bears S. E. when you will be nearly abreaſt of the *Warren Haſtings'* ſhoal.

" The *Belvidere* was a ground on a ſhoal bearing N. N. W. from Gaſpar about 5 leagues, and from the N. E. point of Banca N. by E. $\frac{1}{4}$ E. about 7 leagues. From their remarks, and when upon it, they had a rock bearing N. 42° E. diſtance about 3 miles. Thoſe have been ſeen by the *Sulivan*, *Hawke*, and ſeveral others. To avoid them it is neceſſary to keep Gaſpar iſland to the eaſtward of S. S. E. till you paſs this ſhoal.

" *Poolo Domar* bears from Gaſpar iſland N. 19° W. 112 leagues; and I believe the interval to be a clear paſſage.

" Homeward-bound, having paſſed Poolo Totty, I would not adviſe the navigator to come nearer Banca than 16 or 17 fathoms, nor more to the eaſtward than 19 or 20, in the night time, which will lead him in a fair way for Gaſpar. But it ought to be remarked that, if a ſoutherly current prevails after paſſing Poolo Aore or Aro, and Domar, it will tend more to the eaſtward after paſſing Poolo Totty, occaſioned by the coaſt of Banca trenching to the eaſtward, and this muſt be guarded againſt. Gaſpar lies 1° 49′ of longitude Eaſt of Poolo Domar, and bears S. 44° E. from Poolo Totty; diſtance 40 leagues. Their difference of longitude about 1° 23′. But there is no neceſſity to come within 5 or 6 leagues of Poolo Totty. The ſhip will not make ſo much Eafting if the above-mentioned current prevails, which I believe is general during the N. E. Monſoon. The ſoundings being attended to will be a check, whether ſailing in the night, or laying to for daylight, to make Gaſpar iſland.

" Having made Gaſpar iſland, keep it or bring it to the eaſtward of S. S. E. to avoid the *Belvidere's* Shoal, mentioned before. The track between Gaſpar and Tree rock ſeems the moſt explored: but that between the rock and the north-eaſt point of Banca may be equally ſafe and commodious. In either caſe a birth muſt be given to the ſhoal on which the *Warren Haſtings* was aground. I ſaw ſtrong riplings there of conſiderable extent, which I ſuſpected to be broken ground.

" The paſſage between Salt and Middle iſlands, in my opinion, ought to be eſpecially preferred homeward-bound in the N. E. Monſoon; for the winds here often prevail in the N. W. quarter, and ſtrong currents to the ſouth-eaſtward, in which I would adviſe the track of the *Hawke*.

" However, if from circumſtances it is adviſable to go to the eaſtward of Middle iſland, leave both of the ſhoals to the weſtward; but keep the eaſternmoſt ſhoal cloſe on board if the wind be to the weſtward of North, on account of weathering ſandy iſland with a leeward current. This eaſternmoſt ſhoal will ſhew itſelf by a breach if there be the leaſt ſwell, otherwiſe by the colour of the water and ripling: it is ſteep-to on both the eaſt and weſt ſides.

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My boat was close to the east side of the breach in 9 fathoms, and the *Hawke* passed within a cable's length of the west side of the ripling.

"Having passed Sandy island, and brought Middle island to bear N. N. E. the Two Brothers will bear S. 23 ¼ W. distant from Middle island 49 leagues. I have not found much current in the N. E. Monsoon on this passage, but some have experienced a current to the eastward.

## REMARKS ON GASPAR STRAITS.

By Captain LESTOCK WILSON of the CARNATIC, 1787.

THIS passage, in the captain's opinion, ought to be preferred, coming from China: to the one through the Straits of Banca. It is very short compared with the latter, and there is even a possibility of passing it without anchoring at all; but at most a ship can have no occasion to anchor more than one night, if she has the wind and clear weather: *Gaspar island* bears from *Poolo Totty* S. E. exactly, distance 42 leagues, and you may steer almost direct for it upon leaving Poolo Totty. The soundings are more regular, but it seems advisable not to approach Banca nearer than 17 or 16 fathoms, and on the other hand, having sight of Gaspar island, to avoid bringing it to bear to the southward of S. S. E. ½ E. * (which there be no occasion to do) as from the *Hawke's* journal it appears they saw breakers, bearing N. E. and E. by N. with these bearings 3 leagues off, of Gaspar island.

Steering for mid-channel, betwixt Gaspar island and the east point of Banca, you may pass *Tree Island*, within a mile, or nearer, to the westward of it; and then the winds and currents prevailing at this season, will incline you to borrow upon Banca. But you must avoid entering the bay, which is formed by the east and south-east points; and having passed the east point, you must not bring it to the northward of N. N. W. ½ W. The soundings between these two points are the best guide; you may range betwixt them in 14 and 15 fathoms water, very regular depths, till the island in the bays bears West of you, and then you will see the reef which runs off the south-east point 1 ½ mile at least. You must edge over to the eastward, so as to pass without the reef, and having brought the south-west point of *Passage Island* to bear North of you, you may steer to the southward, not bringing it to bear farther to the eastward than N. by E. while it continues in sight.

The only objection to the passage seems to be, that lying 23 leagues to leeward of the one

* "Captain *Larkins*," says Mr. *Dalrymple*, "gives the bearings of Gaspar S. 70° E. and Tree island S. 17° E. when aground on an extensive reef, probably the breakers seen by the *Sulivan*, bearing W. S. W. 6 miles distant, when Gaspar bore S. E. and Tree island S. ½ E."

"The *Belvidere* anchored 10, latitude observed 2° 24′ South, Gaspar E. S. E. 3 ½ leagues, Tree island S. by E. had the shoal about a cable's length distant "N. N. E. and S. S. W. from the ship;" They found the shoal about 2 miles in length; in some places from 6 to 10 feet water, and within 20 yards distance 14 fathoms, hard coral. "At anchor 16, Gaspar E. S. E. 12 miles distant. Tree island S. 20° E. about 10 miles distant a shoal of rocks W. N. W. with not more than 3 fathoms in some places: it appeared to be the length of a cable." These seem to be straggling shoals, with channels between, and therefore, in the day-time dangerous only by neglecting to keep a good look-out from the mast head."



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by Lucepara, it may poſſibly occaſion a difficulty to fetch the *Brothers* (the Two Brothers); to avoid which it will be neceſſary to attend to the currents, and to anchor in caſe of their ſetting ſtrong to the eaſtward, while the wind is ſcant.

" But I obſerve," ſays the captain, " that the overfalls and irregularities in the ſoundings, off *Tree Iſland* (Great trees iſland) alarm people in the night, and very often occaſion as great a difficulty to fetch the Brothers, coming from Lucepara as from this channel; as we had inſtance of, for we fell in with the *Lord North*, and *Pigot* (who had come by that channel) the morning after we had left Banca.

" The eligibility of this paſſage for ſhips outward bound is another conſideration, and here I muſt confeſs I cannot give it the ſame preference. Beſides that, I believe ſhips would hardly ever be able to fetch it from the Brothers * till the extent of the dangers off the ſouth end of Banca are better known, the approach of it muſt be dangerous; and we ſeem to be equally ignorant of what dangers may lie off the numerous iſlands lying to the S. E. of Paſſage iſland, which makes the eaſt ſide of the Straits. Were the entrance once explored, and found ſafe, the paſſage would deſerve every preference."

## THE CHINA SEAS.

### THE MONSOONS, WINDS, AND CURRENTS IN THE CHINA SEAS.

FROM the Straits of Sincapore, throughout the China Seas, to the Philippine iſlands, the Monſoons are nearly the ſame as on the Coaſt of Coromandel, and parts adjacent.

The S. W. MONSOON ſets in about April, and continues to the beginning of October.

In the Gulf of Siam, on the Coaſts of Camboja, Cochinchina, of the Gulf of Tonkin, and of China, it begins between the firſt days and the end of April; which is to be underſtood of the coaſts only, for in the offing, it commences a month later: and it is from this reaſon that on the north part of Borneo, on Palawan and Luconia iſlands, it is not ſeen to prevail conſtantly but from the 1ſt to the 15th or 20th of May.

In June, July, and Auguſt, they have much rain, and ſometimes freſh gales of wind.

In September the winds are variable, ſometimes from N. E. to Eaſt, and S. E. blowing freſh with rain, but in general from the S. W. and continue thus to the new or full Moon in the beginning of October, when it generally breaks up in a violent ſtorm from the ſame quarter. Sometimes the ſtorm comes on at Weſt, or N. W. with abundance of rain; when the ſtorm ceaſes, the wind ſhifts gradually round to the North and N. E. or E. N. E. in which quarter it continues all the N. E. Monſoon.

The whole month of October is rather dangerous, and they have generally ſome rain;

* " The ſhips outward bound that have gone this way, obſerves Mr. *Dalrymple*, did not find any difficulty; but certainly ſhips intending to go this paſſage ought to paſs to the eaſtward of the Brothers."

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but after that the weather is fair and ſettled, and the navigation of that ſea is reckoned very ſafe.

About 25 or 30 leagues to the eaſtward of the Nicobar iſlands, in the Indian ſea, you loſe the S. W. Monſoon, and have the winds favourable from Weſt to North, ſometimes S. E. —South, or S. W. but moſtly from the N. W. quarter, with ſome hard ſqualls, and rain which always come from the N. W. quarter, and are of great ſervice to ſhips bound to the S. E. through the Straits of Malacca. In theſe ſqualls you ought to carry ſail, becauſe thereby you will greatly facilitate your paſſage.

At other times you will meet with little winds that are variable, alſo calms quite through the ſtraits aforeſaid. But as ſoon as you get clear without Pedra Branca, and the iſlands off Point Romania, you then get hold of the S. W. Monſoon again, which blows quite through the China Seas to the Philippine iſlands.

The N. E. MONSOON blows from October to April; but in January it is reckoned to blow hardeſt; and frequently you will have much rain, and a pretty large ſea, with intervals of fair weather; you will meet moſt likely with this weather near Poolo Sapata, and off Poolo Aore, &c. Yet, as ſoon as you enter the Straits of Sincapore, you loſe all that rough weather, and all the way through the Straits of Malacca to Acheen head, you will have moderate weather.

Sometimes in Malacca road, you will have frequent land-winds from N. E. to Eaſt, but you do not find theſe winds in any other part of the ſtraits, till you get to Acheen head; there you meet with the N. E. Monſoon.

The N. E. and N. W. Monſoons when near done, blow faint; and then the land and ſea-breezes begin near the ſhores and continue to blow, more or leſs, until the oppoſite Monſoon commences, and gathers ſufficient ſtrength to blow ſteady: conſequently there are LAND and SEA-BREEZES in February, and early in March, along the Coaſts of the gulf of Siam, and thoſe of Camboja, Cochinchina, Tonkin and China.

Throughout the China Seas the LAND SQUALLS blow oftener, and uſually, but not always, more violent in April, May, June and July, than in Auguſt or September, along the Coaſts of Camboja, Tonkin and China. On theſe coaſts, a land-breeze is certainly ſucceeded by either a ſea-breeze, or a wind along ſhore, ſufficient to bring any ſhip that ran off with the land-breeze, in with the land again.

The S. W. Monſoons conſtitute a freſh, ſometimes a violent ſea wind on the Coaſts of Camboja, Tonkin, &c. that blows with little variation during the months of May, June, and July.

In the whole of theſe ſeas the VARIABLE WINDS perfectly reſemble thoſe in the Bay of Bengal.

They are ſubject, as well as the adjacent iſlands, to ſevere STORMS and ſhort CALMS, at the ſame ſeaſons and from the ſame quarter as thoſe in the Bay of Bengal, northward of Negrais; they generally happen in October and November (for they ſeldom or never come earlier or later): they begin with a drizzling rain, and the wind about E. S. E. then it increaſes, and veers to Eaſt, E. N. E.—N. E. and North, and ends there, except it is very



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ſurious, in which caſe it ſometimes veers to N. N. W. and N. W. where it ends, blowing hardeſt from the N. N. E. to N. N. W. or N. W. quarter, with a heavy rain the whole time. At this ſeaſon a ſtorm will ſometimes blow for a day or two, from Eaſt, or E. N. E. to North, and then all calm for a few minutes; when beginning to blow ſeverely at S. S. W. for half an hour, it quickly ends in fair weather. This is not ſo hard as the laſt-mentioned ſtorms; but is like them attended with much rain, and continues much longer, for the ſevere ſtorms laſt not above 6 or 8 hours. It is to be obſerved that theſe ſtorms ſometimes happen ſooner in the China Seas than in Bengal; for they have been met with in Auguſt and September, as well as October and November: thoſe in September and October are moſt frequent and violent.

The China Seas are ſubject alſo to dangerous TYPHONS, againſt which you cannot take too much precaution: their prognoſtics are thus deſcribed by *Antonio Paſcal de Roſa*, a Portugueſe pilot of Macao.

"On the 18 or 19 day of the Moon's age, if the Sun ſets angry, making the Horizon in that quarter of a deep red, and tinging the clouds with the ſame colour, a ſtorm certainly follows, increaſing ſpeedily from a ſmall air at N. E. (from which quarter it is generally found to blow the hardeſt) to a prodigious hard gale, about midnight veering to the Eaſt and South, round to the weſtward. When the wind veers to the S. W. the violence is abated; but when theſe appearances are attended with thunder and lightning, nothing is to be feared but ſudden ſqualls of ſhort continuance.

"I have been an eye-witneſs," continues the pilot, "of ſhips overſetting in theſe ſeas, by officers deſpiſing the prognoſtic, and neglected to take in the ſails in time. I would therefore adviſe keeping only the fore-ſail abroad, in order to run before it; for the ſea riſes very confuſedly, ſo that lying-to is often fatal

"I do not affirm that the 18th and 19th of the Moon's age are the only periods when a Typhon is to be feared; but they are more conſtantly felt on theſe days, than at any other time—obſerve alſo that thunder and lightning are the reverſe on the coaſt of theſe ſeas, of what they are on others."

Through the China Seas, at a diſtance from the ſhore, the CURRENTS generally run, more or leſs, toward the N. E. quarter, from the middle of May till the middle of Auguſt; and the ſame way from the middle of October to March or April.

Along the adjacent ſhores the currents to the N. E. quarter are commonly much ſtronger in October, November, and December, than the oppoſite currents are in May, June, and July. They run particularly ſtrong within the iſlands and ſhoals that lie near the ſhores: this many ſhips bound to Canton, and which have been driven among the iſlands to the weſtward, have experienced; for they have been obliged to warp up quite to Macao.

The ſtrongeſt currents, in theſe ſeas, are along the Coaſts of Camboja, the latter end of November. "From Cape Avarella to beyond Poolo Cecir da terra, the current certainly runs from 50 to 70 miles to the ſouthward every 24 hours. Some part of the ſtream ſetting into the Straits of Malacca, cauſes the tide to run 9 hours one way, and only three hours the

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the other. The ſame happens ſometimes in May and June, from the current occaſioned by the S. E. and S. W. Monſoons.

In April the currents begin to run, more or leſs, to the northward, through the Straits of Banca, and paſt the Straits of Malacca, and along the weſt ſide of the Gulf of Siam; but along the north-eaſt ſideof the ſame gulf, they ſet pretty ſtrong to the E. S. E. until the eaſtward of Point Ooby; then they bend to the N. E. quarter, and run along the coaſts of Camboja, Cochinchina, and China, till September, when the oppoſite Monſoon and currents begin to prevail from the N. E. quarter, and continue to March or April.

## DIRECTIONS FOR SAILING

### 1° FROM THE *STRAITS* OF *BANCA* TO *POOLO AORE*.

HAVING paſſed the Frederick-Hendrick, you ſteer N. by E. to go between the SEVEN ISLANDS and Poolo Taya: the former lie about 14 leagues on this point of the compaſs from Monopin Point, in 1° 7′ South; they are of various ſizes, and high enough to be ſeen 8 leagues off. The ſouthernmoſt appears very ſmall, and a little ſeparate from the reſt; the weſternmoſt is the largeſt: the coaſting along theſe iſlands is ſafe on the weſt ſide, but on the eaſt ſide, and between them, the dangers are not known.

POOLO TAYA, about 25 miles N. W. of the northernmoſt of the Seven iſlands, is high, and may be ſeen, in clear weather, 10 or 12 leagues; on the north ſide of it are two great rocks; it lies in 48′ latitude South. In ſailing from the Straits, towards theſe iſlands, the depth increaſes from 7 ½ to 12, 15, and 17 fathoms. In the night-time, or in cloudy weather, you may perceive whether the currents ſet to the weſtward by the ſoundings decreaſing, and the bottom being ſand mixed with ooze; whereas on the Banca ſide they increaſe, and the bottom is only clear ooze.

Beyond Poolo Taya, there are iſlands of ſeveral ſizes, and all in general exceeding high: the moſt conſiderable is POOLO LINGING, or *Lingen* which ſhews itſelf above the reſt, by a mountain whoſe top terminates in two pointed ſpires, like two ſteeples near each other. On the eaſt part of the iſland there is another hill that is joined to the firſt by a low land, which at a diſtance makes it appear like an iſland. This hill is not ſo high as the former, and is ſmoother at the top; to the Eaſt of it, lies a ſmall iſlot of moderate height, covered with wood, and diſtant 1 ½ league from the point of Poolo Linging.

Poolo Linging is but little known; in March 1788, the *Enterprize*, Captain *Elmore*, being at anchor off the north part of that iſland, ſent her long boat to land there, but the inhabitants would not permit it, and diſpatched three armed prows to make the boat leave their ſhore immediately. The *Enterprize* was obliged to change her anchorage the ſecond day, having found her anchor foul, and the cable cut in two places. There is a better anchoring place in a bay on the ſouth ſide of the iſland, 7 or 8 miles S. E. of the mouth of the river, to which the Engliſh have given the name of *Hood's* River. The bay is 12 or 14 miles broad, with a depth from 6 ½ to 7 and 10 fathoms water, gradually ſhoaling towards

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towards the ſhore: you anchor there in $6\frac{1}{2}$ and $4\frac{1}{2}$ fathoms, S. S. E. of a ſmall iſle with a hummock, called *Phillip's* iſland; Poolo Taya bearing S. S. E. from the anchorage, farther in, and the mouth of the river N. W. $\frac{1}{2}$ N. The inhabitants appear to be more ſociable here than thoſe of the north coaſt.

Between Poolo Taya, and the ſouth point of Poolo Linging, there is a dangerous bank on which the *Ilcheſter* was aground in 1754; and to the northward of the eaſt point of the ſame iſland, exactly under the Line, you perceive ſeveral ſmall and low iſlots, which are called *The Dominis*.

When you are about 5 leagues Eaſt of Poolo Taya, ſteer N. E. by N. till in the latitude of 30′ North, to go without the two ſhoals, the eaſternmoſt of which, (where there are breakers, ſeen by the *Hardwick*) lies N. E. by N. of the eaſt point of Poolo Linging. The ſoundings in this track, between Poolo Taya and the Line, are 18 or 20 fathoms, fine gray ſand, and beyond it 24, 25, and 27, the ſame ground.

Having doubled the banks above mentioned, you muſt ſteer N. by W. to get ſight of Poolo Aore. If you ſhould happen to be ſet to the eaſtward, towards the *Anambas*, you may be appriſed thereof by your ſoundings, which will be 45 and 50 fathoms, mud; whereas in the fair way to Poolo Aore, you have only from 28 to 35, fine gray ſand, ſometimes a little coarſer, mixed with ſmall black ſtones and very little mud.

## 2° From the *STRAITS* of *SINCAPORE* to *POOLO AORE*, *POOLO TIMON*, &c.

IN going out of the Straits of Sincapore, ſtand no nearer Point Romania than 15 or 16 fathoms, and when this point bears North, Pedra Branca is to be ſeen off the deck. This rock, as we have already obſerved, is very ſteep; if a leading gale ſerves to go out, ſteer for it in 20 fathoms, and as you near it, you will have irregular ſoundings; you may ſafely paſs it within $1\frac{1}{2}$ mile, in depths from 30 to 39 fathoms.

Stand to the eaſtward from Pedra Branca, till Bintang hill bears S. $\frac{3}{4}$ W. and Barbucet hill W. by S. which is a general rule, before you bear away for Poolo Aore. Steer N. N. E. or N. by E. towards this iſland, which is bearing N. N. E. $\frac{1}{2}$ N. 25 leagues from Point Romania.

You paſs to the eaſtward of Poolo Tingy, an high land which makes in a peak gradually riſing from the eaſt coaſt; to the ſouthward of it there are ſome ſmall iſlots, and S. E. by S. 3 leagues, (or 8 leagues S. W. by S. from Poolo Aore) there is a rock even with the water's edge, which you muſt avoid in ſailing to the latter iſland. Poolo Tingy lies about 10 leagues S. W. by W. $\frac{1}{2}$ W. from Poolo Aore and 3 leagues N. W. of this is Poolo Pesang; the ſmalleſt of the three is about $1\frac{1}{2}$ league long. You ſail to the eaſtward of theſe iſlands in ſoundings from 30 to 40 fathoms. The channel between the iſlands North of Poolo Aore, and the ſouth point of Poolo Peſang is about 2 leagues wide, and free from danger.

Poolo Aore, or Poolo Auro, is a ſmall but woody iſland, making two hills like a ſaddle

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ſaddle when it bears N. E. but the eaſternmoſt is the higheſt; when it bears N. W. it has a different appearance, the two hills being ſhut in one. Near the ſouth-eaſt point is a little iſland covered with cocoa-trees, and 3 or 4 others on the north ſide. This iſland affords water and ſome refreſhments; you may anchor either off a ſmall ſandy bay to the eaſtward, in the weſtern Monſoon, or in another to the weſtward, in the eaſtern Monſoon. Poolo Aore is the eaſternmoſt of the group of iſlands in that part, and lies between 2° 29′ and 2° 30′ north latitude.

From Poolo Aore to Poolo Timon, the courſe is N. W. by N. about 10 leagues: the depth of water between them from 36 to 30 fathoms.

In the months the Monſoons are ſhifting, the current runs very ſtrong amongſt the iſlands Aore, Peſang, and Timon, and between them and the Anambas: it is very changeable, ſetting, at the the latter end of September or beginning of October, for ſeveral hours together, to the S. S. W. and S. W. by S. 1½ or 2 knots per hour, and after ceaſing for ſome time, will run to the ſouthward, at the rate of 1 knot, and then S. S. E. —S. E.—E. S. E. and ſometimes to the N. E. 1½ knot, for ſeveral hours: then it ceaſes again for ſome time, and runs to the South and S. S. W. as before. In the month of April, when the Monſoons ſhift again, the current ſets as faſt to the northward, from N. by W. to N. N. E. and N. E. at the rate of 1 or 1½ knot, and ſometimes 2 knots. So thoſe who come this way in the aforeſaid months, and in hazy weather, or the night time, muſt have great regard to the currents, or they will be much deceived. In the other months, after the Monſoon is ſet in, the currents are pretty regular and conſtant in both Monſoons. In the S. W. Monſoon the current, from Pedra Branca to Poolo Aore, &c. ſets N. by E. or N. N. E. about 1 knot. At Poolo Aore, and between it and the Anambas, it runs North, and N. by E. 1½ knot; and ſo to the north part of Poolo Timon. From Poolo Timon, for 20 leagues to the northward of, you will have a current ſetting N. by E. about 1 knot; then it ceaſes, and you find little or no current afterwards, as you ſail on to Poolo Condore, Poolo Sapata, or indeed all over the China Seas, in either Monſoon, except at the time of their ſhifting. In the N. E. Monſoon the direction of the currents is juſt the contrary way, at much the ſame rate.

## 3° From the *STRAITS* of *SINCAPORE* towards the *GULF* of *SIAM*.

MOST ſhips bound to the Gulf of Siam, after doubling the reef off Point Romania, keep along the Malay coaſt in 14 and 15 fathoms; paſſing to the weſtward of Poolo Tingy, and the iſlands to the northward, through the channel in which there is not leſs than 8 or 9 fathoms.

The following is an extract from the journal of a very experienced navigator, who ſailed to the eaſtward of Poolo Tingy and paſſed to the northward, between it and the iſlands lying to the N. W. thereof; it will afford ſome knowledge of theſe parts, as far as Poolo Varella, that lies 9 leagues N. W. by N. from the north point of Poolo Timon.

"June

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"June the 17th, 1732. Sailing from Pedra Branca, we ſtood to the eaſtward 2¼ or 3 leagues, rather for form's ſake than through neceſſity, to double a bank which the Portugueſe charts make to run out a good diſtance from Point Romania, or Point Johore, as they name it. I ſaw no likelihood of its projecting ſo far out as theſe charts repreſent. I ſteered North and N. by W. with a ſteady gale a W. S. W. to get ſight of Poolo Tingy, and though the tides were againſt us, that did not hinder us from perceiving it about midnight from N. N. W. and N. W. by N. of us, and Poolo Aore North; ſo that on the 18th day at noon, we were a league to the northward of Poolo Tingy. There I obſerved, in a little bay on the north ſide of that iſland, ſome banana-trees, palm-trees, and huts: the depth of this bay, at the above diſtance, is 14 fathoms, ſand and ooze.

"We ſteered W. N. W. and N. W. by N. to go between Poolo Tingy and a large iſland to the north-weſtward; this is long and high, lying North and South, and its weſtern ſhore is embelliſhed with a fine border of fine white ſand: about a gun ſhot from it there is a leſſer one, but equally high. When the large iſland bore N. N. E. we ſtood to the northward; leaving it on the ſtarboard ſide, and the iſlands near the ſhore on the larboard. Throughout this whole track we found 14, 12, 8, and 7 fathoms, ſand.

"Having been ſet off to ſeaward from the continent, and being about 1½ league to the eaſtward of the north part of the large iſland, in order to get in with the land again, we ſteered N. N. W. and N. W. by N. ſo that on the 19th at noon Poolo Varella, a little iſland, which lies off the main land of Malay, bore Eaſt, 3 leagues of us. In this track we had 10, 8, and 6 fathoms, ſand, gravel, and ſometimes ooze. At the ſame time Poolo Timon bore from S. E. to S. E. by E. about 11 or 12 leagues. The land of Malay, thus far, is low by the ſea ſide, with a ſandy ſhore and ſome downs. The winds blow in the day-time from the S. E. and in the night ſhift round to the weſtward, till about 10 or 11 o'clock in the afternoon."

By this extract it is proved that you may ſafely paſs between theſe iſlands and the main. Nevertheleſs thoſe who are ſailing this way ſhould keep a good look out for rocks laid down in ſome draughts, between this iſland and the main, near the water's edge.

## DIRECTIONS FOR SAILING FROM POOLO AORE TO POOLO TIMON—THE ANAMBAS—POOLO DOMAR.

WE have ſaid juſt now that Poolo Peſang lies 3 leagues N. W. of Poolo Aore, and that the courſe from Poolo Aore to Poolo Timon is N. W. by N. about 10 leagues, with a depth of water from 36 to 30 fathoms. The body of the latter iſland bears N. N. W. of Poolo Peſang; and from the north point of this it is computed three leagues to the ſouth point of the other, near which is a little iſlot or rock which muſt be coaſted to the ſouthward, when you ſail through the channel for the weſt part of Poolo Timon.

Poolo

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Poolo Timon, or Timoan, is the northernmoſt and largeſt iſland; the north part of it lies in latitude 3° 0′ North; it is ſo high that the top of it is ſometimes hid by the clouds, and there is one mountain terminating in two points, like the ears of an aſs, which ſeamen have therefore called by that name.

"Poolo Timon may be ſeen 20 or 21 leagues; I have ſeen it very plain," ſays Mr. *Robertſon*, "bearing due South, 19 leagues." There is good anchorage and good water on both the eaſt and weſt coaſts; the dangers are all apparent, the bottom clear, and the iſland is very plentiful in refreſhments. The moſt conſiderable village ſtands in the ſouth-eaſt part, at the bottom of a little ſandy bay, where you may anchor in 20 or 22 fathoms, ſand.

In landing at Poolo Timon, or at any other of theſe iſlands, you muſt be on your guard againſt the Malays by whom they are inhabited: do not truſt to their hoſpitable appearance, with which they will attempt to deceive you: you muſt always be well armed, and not go too far from the ſea ſide, but make them bring the commodities you would purchaſe.

At the north-weſt end of Poolo Timon are 3 little iſlands, between which and the great one, the channel is very deep and conſequently ſafe; near the latter, under the ſhelter of theſe iſlets, there is very good anchorage in 12 fathoms.

To the eaſtward of Poolo Timon, about 25 leagues and about 23 N. E. by E. from Poolo Aore, you meet with another cluſter of iſlands of different ſizes, and little known, which are called the Great or Middle Anambas: they are very high, and lie in about 3° north latitude. The ſoundings in the channel between theſe iſlands, and thoſe of Timon and Aore, are ſo much alike in point of depth and quality of ground, that they can never indicate with certainty on which ſide of it you are.

About 20 leagues N. E. by E. from Poolo Aore and 21 E. by N. from Poolo Peſang is the little iſlot or rock called Poolo Domar 5 or 6 leagues to the ſouth-weſtward of the Greater Anambas. It is as high above water as a ſhip's main top, and twice or 3 times the length of a large ſhip; the ſides of it are almoſt perpendicular, and look very white when the ſun ſhines upon them: there is no fear of this rock in the day-time, but you ought to be cautious in the night. Poolo Peſang, Poolo Aore, and Poolo Domar, have been ſeen at the ſame time.

Twelve or 13 leagues to the northward of the Great Anambas, lie another cluſter of ſmaller iſlands to which they have given the name of North Anambas.

## DIRECTIONS for SAILING from POOLO TIMON to POOLO CONDORE.

BEING the length of Poolo Aore or Poolo Timon, there is a neceſſity of making Poolo Condore, for the greater certainty of making Poolo Sapata, and to avoid the Middleburg Rock, as well as the other ſhoals to the ſouth-weſtward of it.

Poolo Condore bears N. 26° E. diſtance 121 leagues from Poolo Timon. Thoſe who

 ſail

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ſail from the one to the other in the Weſtern Monſoon, muſt not content themſelves with ſhaping the courſe according to their ſituation, but muſt be careful to guard againſt the currents, which in this Monſoon ſet to the eaſtward, and generally cauſe ſome difference that way. Their velocity does not depend upon the force of the wind, as ſeveral pretend; for it has been obſerved, that with a moderate breeze the difference has been as conſiderable as with a ſtrong gale; and experience invalidates the opinion that theſe currents and the wind have the ſame direction, ſince from a South or S. S. W. wind you find, contrary to this rule, as great a difference to the eaſtward, as with the wind at W. S. W.

In the firſt caſe, where the direction of the wind is the ſame with that of the two places, the only difference is that you make a quicker paſſage than was expected; yet this does not oblige you to take a ſweep more one way than another. In this part then it is very difficult to ſettle a certain rule concerning the direction and ſtrength of the currents. You may however be ſure of making Poolo Condore; if in ſailing from Poolo Timon, you ſteer N. by E. 4° E. about 80 leagues, then N. N. E. to get ſight of the iſland, which may be ſeen 15 or 16 leagues off, in clear weather. This is the way to prevent the uſual ſet of the currents. At 5 or 6 leagues to the ſouthward of Poolo Condore, there are 21 or 22 fathoms, fine gray ſand, with ſmall ſhells. If you have this depth, and in the latitude of 8° 20′ North without ſeeing it, and that by ſtanding North or N. N. E. it decreaſes to 17 or 18 fathoms, this will ſhew that you are to the weſtward of Poolo Condore: on the other hand, if it increaſes to 24, 25, and 26, you will find yourſelf to the eaſtward thereof.

The following ſoundings with the bearings of Poolo Condore are given by Mr. *Nicholſon*. Poolo Condore bearing N. by E. $\frac{1}{4}$ E. diſtance 16 or 17 leagues (at which bearing and diſtance it can be ſeen in clear weather) you will have 20 fathoms, fine white ſand, with black ſpecks;—N. N. E. 9 or 10 leagues, 20 fathoms, fine white ſand—N. by E. 4 or 5 leagues 19 fathoms, ditto—N. W. 7 or 8 leagues, 21 fathoms, ditto—Weſt 12 leagues, 24 fathoms ditto—W. by S. $\frac{1}{4}$ S. 22 leagues, 28 to 30 fathoms, fine gray ſand—W. by S. $\frac{1}{4}$ S. 25 or 26 leagues, 37 fathoms, fine dark-coloured ſand—W. by S. $\frac{1}{4}$ S. 40, 41, or 42 leagues, 48 or 50 fathoms, fine gray ſand, and you will have no ſoundings, to the eaſtward of this.

Poolo Condore is not one iſland only, but conſiſts of ſeveral iſles near each other, about 15 miles in length, which are all very high and covered with trees. They lie about 17 leagues S. by E. from the mouth of Camboja River. The large iſland, which is the only one inhabited, is about 3 leagues long, and $1\frac{1}{2}$ a league in its greateſt breadth, and lies N. E. and S. W. It is a ridge of high mountains, of very difficult acceſs, and ſeparating the harbour from the great bay where the inhabitants dwell: theſe amount to about 200, all fugitives from Camboja and Cochinchina; and all exceedingly ſlothful, covetous, ſelfiſh, and poor.

The middling iſland is as mountainous as the largeſt, but not ſo high; its length is one league, and its breadth $\frac{1}{2}$ a league, in a S. E. and N. W. direction. Its advantageous ſituation to the weſtward of the great one, forms between the two an exceeding good harbour, capable of containing 8 ſhips, the entrance is $\frac{1}{2}$ a league wide, and the bay is equal to the length

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length of the middling iſland; but ſhips cannot get to the farther end on account of the ſhallow water. Here the Great and Middling iſlands are ſo near that there is but a narrow paſſage left for boats, canoes, and proes. The tides, at the full and change, flow here N. E. and S. W. or at 3 o'clock, and the ſea riſes and falls 3 feet. The height of the hills darkens this harbour, and renders the air thick and very unwholeſome.

On the other ſide of the hills at the ſouth-eaſt part of the Great iſland, there is a very ſpacious bay, at the entrance of which, ſome little iſlands are ſo diſpoſed, that they cloſe it up as it were half-way; ſothat the anchorage would be very good and ſafe if the bay were not ſo wide, and ſo much expoſed to the winds which blow in the eaſterly Monſoons. Its chief entrance is to the S. E. the other two are neither ſo good nor ſo convenient. Within this bay, upon a marſhy and ſandy plain, is the village, conſiſting of about 40 huts; here may be ſeen the remains of the Engliſh fort.

This iſland produces only potatoes, ſmall gourds, water-melons very bad, and black beans, all in ſmall quantities; it produces likewiſe many foreſt trees, ſome of which are fit to make maſts and yards for ſhips. The Middling iſland has ſome wild oxen and hogs ſprung from the tame ones left there by the Engliſh. Poolo Condore has no ſprings, affording only rain water, which running down the mountains among the rotten leaves, wherewith the ground is covered, acquires a certain tincture, with an unwholeſome quality; therefore the inhabitants prefer the whitiſh water of their wells, to the clear water from the mountains. Their only game conſiſts in ſome wild pigeons and a ſort of woodcocks. The iſland abounds in reptiles and inſects, both troubleſome and hurtful: there are alſo a number of apes, and monſtrous lizards 5 or 6 feet long, which deſtroy all the poultry, and ſmall ones winged, that fly from tree to tree; others which hiſs, whoſe ſting is mortal; ſnakes of a prodigious ſize and length; other ſmall ones, exceedingly venomous: centipeds, ſcorpions, rats, and in ſhort an infinite variety of inſects, bred by the exceſſive heat: but the ants are the moſt troubleſome of all: they get into every thing, and ſpoil whatever they come at. All theſe, with the ſterility of the ſoil and the unwholeſomeneſs of the air, render Poolo Condore a moſt wretched abode.

The Engliſh however ſettled there in the year 1702, when the factory of Chuſan, on the coaſt of China, was broke up. They brought with them ſome Macaſſar ſoldiers who were hired to aſſiſt in building a fort, and to be diſcharged at the end of 3 years; but the chief not fulfilling his engagement with them, they waited an opportunity, and one night murdered all the Engliſh in the fort: thoſe without the fort hearing a noiſe took the alarm and ran to their boats, very narrowly eſcaping with their lives, to the Johore dominions, where they were treated with humanity. Some of them afterward went to form the ſettlement at Benjar-Maſſeen on the iſland of Borneo.

The latitude of the place where the Engliſh fort ſtood is (as obſerved by father *Gaubil*) 8° 40′ North, and its longitude 106° 13′ Eaſt of London, 2° 4′ Eaſt of Poolo Timon, and 2° 5′ Weſt of Poolo Sapata.



DIRECTIONS

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# DIRECTIONS FOR SAILING FROM POOLO CONDORE TO POOLO SAPATA.

## DANGERS ABOUT POOLO SAPATA—MIDDELBURG SHOAL, &c.

BEING 7 or 8 leagues off Poolo Condore, in 20 fathoms, or even 9 or 10 leagues from it, in 22 fathoms, you muſt ſteer N. E. ¼ E. for Poolo Sapata, which will carry you far enough without it, or N. E. by E. which will bring you but juſt in ſight of it, in clear weather; you have ſoundings all the way between the two iſlands.

POOLO SAPATA, or *Shoe Iſland*, is ſo named from its having the reſemblance of a ſhoe in ſome points of view, but its appearance varies according to the different bearings, as it is ſeen by the three following views of that little iſland,

N. N. W. 3 or 4 miles.

N. W. by N. 3 or 4 miles.

W. by S. ½ S. 6 or 7 leagues.

"When it bears North," ſays Mr. *Robertſon*, "it is extremely curious, and looks like as if it were going to fall to the right; both ſides in that point of view ſtand a great way off their center." Ships bound to, or coming from China or Manilla, by the uſual track, always endeavour to make Poolo Sapata, which lies in 10° 2′ latitude North. It is the ſouthernmoſt of the ſmall iſlands called *The Catwicks*; N. N. W. 4 leagues from it lies another round iſland, which is the weſternmoſt, or *Great Catwick*, and between them is a rock above water, called the *Little Catwick*, which reſembles a pyramid; there ſeems to be a reef running from this to Poolo Sapata, and likewiſe a great ripling toward the N. E. by E. about 6 miles.

Poolo Sapata being pretty high may be ſeen in clear weather 10 or 11 leagues, from the quarter deck of an Indiaman, and the two other Catwicks are deſcried at 8 or 9 leagues.

To the ſouth-eaſtward of Poolo Sapata there are *Two dangerous ſhoals* whoſe extent is not better aſcertained than their reſpective diſtance from the iſland; the firſt has been ſeen by the French in 1730 and 1733, and by a Swediſh ſhip in 1744; the ſea breaks upon it, and it lies about E. S. E. from the body of Poolo Sapata, 3 or 4 miles. It was ſeen again in 1758 and 1761 by captain *Haggis* of the *Prince Henry*, who is confident that its diſtance is not above 5 miles from Poolo Sapata, and that bearing S. E. by E. ¼ E. it is in one with Sapata. The other ſhoal, which might be only an extenſion of the firſt, lies alſo about E. S. E. and better than 3 leagues off, according to captain *Webb*, who ſaw it in September 1751.

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To avoid this ſhoal it does not ſeem prudent, chiefly as there is no occaſion, to go nearer Poolo Sapata than 4 leagues, not even in clear weather. Another danger lies to the weſtward of the Catwicks, againſt which prudence equally requires that you ſhould keep a good look out, *viz.* a *Rock* lately diſcovered 4 leagues weſt of the Great Catwick.

There is alſo between Poolo Condore and Sapata, a ſmall rock, even with the water's edge; it has been diſcovered by captain *Boone*, and is made to lie 15 leagues E. by N. from the latter iſland, but ſeveral navigators deny its exiſtence.

The following account of the depth of water, &c. in the vicinity of Poolo Sapata, is taken from Mr. *Nicholſon*.

| Poolo Sapata bearing | Diſtance. | Depth of water and quality of the ground. |
|---|---|---|
| N. E. ½ E. | 8 or 9 leagues | 42 fathoms, coarſe gray ſand, with ſome ſmall ſtones, and black ſpecks like pepper-corns. |
| N. E. by E. | 10 leagues, and the weſternmoſt Catwick N. N. E. ½ E. 7 or 8 leagues. | 52 ditto, fine brown ſand. |
| E. N. E. | 8 leagues, and the weſternmoſt Catwick N. E. 6 leagues | 46 ditto, fine gray ſand. |
| N. E. | 9 leagues | 96 ditto, mud and ſand. |
| N. N. E. | 8 or 9 leagues | 78 ditto, ooze. Here the current ſets S. S. W. 2 knots and 3 fathoms, the latter end of September. |
| N. E. by E. ½ E. | 9 leagues | 72 ditto, ooze. |
| N. E. by E. ¾ E. | 5 leagues | 70 ditto, ooze and white ſand. |
| N. by E. ½ E. | 7 miles | 75 ditto, ooze. |
| N. by E. | 4 leagues | 80 ditto, ditto. |
| N. by E. | 7 or 8 leagues | 85 ditto, mud and ſand. |
| N. E. ½ E. | 7 leagues, and the weſternmoſt Catwick N. by E. ½ E. 8 leagues, and | 62 ditto, ooze and ſand. |
| | N. N. E. 7 or 8 leagues | 72 ditto, ditto. |

"By this it appears that there are regular ſoundings all the way between Poolo Condore and Poolo Sapata; that the water deepens faſt as you come near Poolo Sapata, and that the bank goes off ſuddenly from 85 to 90 fathoms, and no ſoundings.

"When Poolo Sapata bears about N. by E. you are then going off the bank: at that bearing, 7 or 8 leagues off, you have 85 fathoms; this is the edge of the bank. A very little to the eaſtward or ſouthward thereof, you have no ſoundings, which ſhews that there is none to the eaſtward of Poolo Sapata, and that there is deep water very near it.

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"In or near the latitude of Poolo Sapata, if you have under 48 fathoms, you are to the weſtward of it; if you have 52 fathoms in the ſtream of Poolo Sapata, in the fair way between it and Poolo Condore, it will bear from E. N. E. to N. E. by E. 10 leagues. If you have 70 to 85 fathoms, you are to the ſouthward of Poolo Sapata, and near the edge of the bank; and Poolo Sapata then bears from N. by E. to N. N. E. from 4 to 8 leagues; therefore, being in the latitude of Poolo Sapata, and no ſoundings, you may be ſure you are to the eaſtward of it."

"The eaſtern part of the Romania reef," ſays Mr. *Robertſon*, "runs from Pedro blanco (Pedra branca) N. E. by N. Bintang hill bearing S. by W.* ½ W. is the leading mark to clear the reef—a N. N. E. courſe from theſe bearings will bring a ſhip in mid-channel between the Auro and Anamba iſlands; from that ſituation, continuing on a N. N. E. courſe, it will carry you 31 leagues to the eaſtward of Condore, in 42 or 43 fathoms, fine dark ſand, and will bring you up in ſight of Sapata, which will bear N. by E. when 6 leagues off it."

The MIDDELBURG SHOAL was ſeen by the *General Coote*, captain *Baldwin*, going to China in 1786; according to that ſhip's account it lies 20 leagues due South from Poolo Sapata. M. *D'Après* places it at the ſame diſtance, in 9° 4′ latitude North, but to the S. by E. adding that it ſtretches 2 leagues N. E. by N. and S. W. by S. and that another ſhoal lies 6 leagues from it E. 5° S.

## DIRECTIONS FOR SAILING FROM POOLO SAPATA TO THE COAST OF CHINA.

HAVING paſſed Poolo Sapata, 5 or 6 leagues to the eaſtward, the courſe is N. E. ½ N. to get ſoundings on the MACCLESFIELD SHOAL, ſituated between the parallels of 15° 10′ and 16° 17′ North; in following this track you leave to the ſtarboard the ANDRADA ROCK, and the VIGIA OF ELEVEN DEGREES. The firſt is a ſmall rock juſt above water, 19 leagues to the eaſtward of Poolo Sapata. The Vigia, named alſo *Cambridge iſland*, in latitude 11° North, is a ſandy iſland, near the ſurface of the water, which has a reef at each end. The *Montague* and *Cambridge* made it on a N. E. by E. courſe from Poolo Sapata in 11° 5′ North, by a good obſervation. The paſſage between the Vigia of 11° and the Andrada Rock, is called by the Spaniards *da Gargantà*, or the Narrows.

N. E. ½ N. from the Andrada Rock, in latitude 12° 45′ North, is a bank of 20 fathoms. Several ſhips going to China, have actually ſeen the colour of the water changed hereabout. Though this bank is not dangerous, you avoid in ſteering N. E. as far as its latitude, from Poolo Sapata, and then N. E. by N. for the

MACCLESFIELD SHOAL, which the French call the *Engliſh Bank*, from its having been diſcovered in 1701, by the Engliſh ſhip *Macclesfield*, is a rocky bank under water, whoſe extent from North to South, as above mentioned, is well known; but the limits of the eaſtern edge ſeem to be better aſcertained, than thoſe of the weſt ſide. On it are various

* Read S. ½ W.

depths;

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depths; 48, 40, 35, 30, and 20 fathoms are the moſt common; on the eaſternmoſt part you have 40 and 45 fathoms, and very little to the eaſtward of theſe ſoundings, no ground. The north-eaſt extremity appears to be the ſhoaleſt; there you find ſeveral ſpots of 10 fathoms, and immediately after, ſailing to the Eaſt, the depth exceeds 60 fathoms, by which you may judge of the ſteepneſs of that edge. "It is more than probable," according to Mr. *Robertſon*, "when you meet with theſe ſoundings, that you are on the eaſtern part of the ſhoal, for there appears no ſuch depth on the weſtern part; and one general rule ought to be always adopted in caſe of meeting with it, which is, to haul immediately to the eaſtward until you deepen."

To the north-weſtward of the Macclesfield Shoal, about 22 leagues, begin ſeveral ſcattered ſhoals of various ſizes, which occupy a ſpace of about 30 leagues in breadth. The neareſt to the Macclesfield is the *Lincoln Shoal* in 16° 40′ latitude North; and 16 or 17 leagues N. by W. from this are the *Amphitrite ſhoals and rocks*, which are alſo called the *Triangles*; to this aſſemblage of dangers the Portugueſe have given the name of the *Spectacles*, or *St. Anthony's girdle*: they are deſcribed as ſeveral rocky pyramids between which it is exceedingly dangerous to paſs; ſome riſe to the ſurface of the water, and many others have 60 or 80 fathoms cloſe to them. Between the Lincoln and Amphitrite ſhoals there are ſeveral dry ſands and dangers very little known; and in general the whole interval between the weſt part of the Macclesfield bank and the Paracels, according to the Portugueſe pilots, a continued chain of rocks and ſands, with deep water between them.

It is very uſeful to ſtrike ſoundings on the Macclesfield ſhoal, to correct your reckoning, that from hence you may with more certainty ſhape your courſe toward that part of the coaſt of China you are bound to.

The neceſſity of falling to windward of the intended port, obliges ſhips in this Monſoon to make the land to the weſtward; therefore thoſe who are bound to Macao, muſt get ſight of St. John's Iſland to the ſouthward of Sanciam, or of Ou-cheou (Poolo Baby) in 21° 37′ latitude North; at the ſouth-eaſt end of St. John's, or even the Mandarine's Cap, which is ſtill more weſterly.

"The great advantage," ſays Captain *J. P. Larkins*, "of the paſſage from ST. JOHN'S ISLAND to Macao, is that there is not a danger but what is in ſight, and its ſoundings are ſo regular, throughout the whole, that you may place the greater confidence in them; you may run, into 4 and 3½ fathoms to the weſtward of St. John's and Sanciam, and along the north ſide of Sanciam, taking care to keep the north end of the ſame cloſe on board, the channel being very narrow in that part; but you are more aſſiſted by the tides there, than in any other part of the channel; you muſt however give a birth to the breakers, at the north-eaſt point of Sanciam.

"You may paſs with ſafety between any of the *Wizard Rocks* (the Hen and Chickens) which lie off the ſouth end of *Tykan*, carrying 7 fathoms.

"Any one who may fall to the weſtward late in the year, and wiſh to work up againſt the N. E. Monſoon, muſt attend to the following obſervations, *viz.* the chain of iſlands lying

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lying nearly E. N. E. and W. S. W. you muſt note that between the iſlands the ebb ſets right out to the S. W. and abreaſt each iſland along ſhore. The flood alſo runs to the weſtward, but between each iſland there is an indraught ſetting to the N. W. and without, ſetting rather upon the iſlands, or about W. by S. by which means, with your larboard tacks on board, you keep the tide under your lee; and by ſtanding in between the iſlands in 4 fathoms, which you may do with ſafety, you will be enabled to round the weſtmoſt point of each iſland, as near as you think proper, they being all ſteep to; which will prevent your being drove too far from the land. As at 3 or 4 miles off ſhore the ſwell is ſo great, that you will not be able to tack, and the diſadvantage of veering twice or thrice in a tide is ſo conſiderable, that you will be a loſer by your tide, ſo it is not adviſable to go without 9 or 10 fathoms, which you will have about 3 miles off ſhore, and you may ſtand in within $\frac{1}{4}$ a mile, and have ſeldom leſs than 5 fathoms.

"If you make the land late in the ſeaſon, let not your anxiety, from a want of the knowledge of the coaſt, carry you to leeward after Sampans, to get a pilot out of them, but ſtand right in, and anchor in 7 or 8 fathoms, where you cannot lie long without getting a pilot. At St. John's there is a good market, and great plenty of every refreſhment, as well as a very convenient watering-place."

Cou-Cock Island, to the eaſtward of Tykam Iſland, is called *Deer Iſland* by M. *D'Après*, and next beyond it, lies Tyloo Iſland, to which he gives the name of *Miroo*; when it bears N. W. or Weſt, and W. $\frac{3}{4}$ N. you diſcover at its eaſt point a white ſpot which has the ſhape of a *mizzen*; it changes that ſhape of a mizzen at all other bearings it can be ſeen, which are but very few, and this is occaſioned by the intervention of a ſmall iſland that lies off that ſpot. This iſland has a good watering-place on the ſouth-weſt end.

The ſoundings are moſtly ooze hereabouts; from Poolo Babee the depth is from 21 to 17, 15 and 13 fathoms, and beyond Miroo towards Macao it is leſs.

In ſailing towards Miroo you ſee to the eaſtward the Ladrone iſlands, which with thoſe of Lema form an archipelago extending to the North and the Eaſt. The ſouthernmoſt of theſe, near the channel of Macao, is the Great Ladrone (Lobang) being larger than the others, with a high mountain round at the top, which in fair weather may be ſeen from the maſt head at 14 leagues diſtance: very near it to the weſtward is the *Little Ladrone*, another iſland of a middling ſize.

About 5 or 6 miles N. W. of this lies a ſmaller one, the fartheſt in the channel, and called *Potoe*, and Passage, or *Middle* Island; it forms two ſmall hillocks, and is encompaſſed with rocks above and under water, to which you muſt give a large birth; ſo that it is ſafer to keep mid-channel, or to come nearer the larboard iſlands, than thoſe which are to be left on the ſtarboard ſide; you range along the iſlands Sam-cheou, *Montanha*, as well as *Kokoo* or *Caho*, whoſe north-eaſt end, called Point Cabareta, being doubled, you come to Macao, where you anchor in 5 or 6 fathoms, ſand and ooze, the town bearing N. W. by W. diſtance $1\frac{1}{2}$ league, and the fortreſs on the hill N. W. 5° W. Ships that are

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are to ſtay here, come nearer the ſhore; but the road indicated is ſufficient for thoſe who are bound to the river of Canton.

About 4 miles to the South of Macao lies the bay and road called TYPA, between the iſlands Kaho and Montanha, already mentioned, which bound it to the South, and thoſe of Kaicoong, and Tee, by which it is incloſed on the north ſide; the ſoundings at the north entrance, in the middle of which lies a ſunken rock, are from 6 to 4 fathoms, and from 3 to $2\frac{1}{2}$ in the bay, all taken at low water, ſpring tides, and for the moſt part, mud. It is high water, on full and change days, at 10 o'clock: the tides run about 2 miles an hour, when they are not influenced by extraordinary winds or rain; their riſe and fall is about 6 feet in the ſprings.

As it is very material to know whether you are to the eaſtward or weſtward of the Great Ladrone, the following rules and marks are to be obſerved. When in 19° 30′ North, if you have above 55 fathoms, or in 20° above 50 fathoms, haul to the weſtward, ſo as not to have above 30 fathoms in 21°; then keep in that depth, which will bring you in ſight of the Great Ladrone. If you have more than 30 fathoms in 21° you may reckon yourſelf 3 leagues to the eaſtward for every 2 fathoms of increaſing depth. In the latitude of 21°, and 30 leagues to the eaſtward of the Great Ladrone, you will have 50 fathoms, coarſe ſand and black ſpecks.

In ſight of land, to the weſtward of the Great Ladrone, you generally have muddy ground. The Great Ladrone may be ſeen in the latitude of 21° 20′, and no other land in ſight; if it bears North you have then about 35 fathoms. If you have no ſoundings till you get into the latitude of 20° 20′, and then find from 45 to 50 fathoms, fine gray ſand and ooze, the Great Ladrone will certainly bear between the North and N. by W. According to others, South from the Great Ladrone, in 40 or 45 fathoms, you will have black coarſe ſand, ſometimes large ſtones, and nearer it white coarſe ſand and ſhells. But if you have no ſoundings, till you get to the northward of 20° 20′; you will find more than 50 fathoms, by which you may depend on being to the eaſtward of the Great Ladrone.

Being to the weſtward of the Great Ladrone, in 20° 20′ or 30′ latitude, your firſt ſoundings will be from 90 to 70 fathoms, dark ſand and ooze; then by ſtanding to the northward, you will have 50, 40, 30, and 20 fathoms, ſand—coarſe ſand and ſhells—ſand and ſtones—and fine gray ſand. As ſoon as you get into 18 fathoms, you will have ſoft mud, which continues to Bocca Tigris.

Another guide is the depth of water; the iſlands to the eaſtward being much ſteeper than thoſe to the weſtward: again, all the iſlands to the eaſtward are high and uneven, having 16 or 17 fathoms water among them; whereas thoſe to the weſtward are moderately even, very high, large and long, making more like a coaſt than iſlands, and having but 7 or 8 fathoms.

When you fall in with them, puſh in boldly for them; and if you do not then know where you are, come to an anchor (for there is always good anchoring ground) and get a pilot; but if you be fearful, and lie off, the currents will drive you about, and other ill conſequences may enſue.



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The following rule, by Mr. *Naſh*, is reckoned equally good as the preceding: when in the latitude of 21° 30′ North, ſtand about 7 leagues to the northward, at which diſtance, if you ſhoal your water but 1 or 2 fathoms, you are then, undoubtedly, to the eaſtward; but if you ſhoal it 7 or 8 fathoms, you are to the weſtward.

When therefore you are convinced, by one of theſe methods, that you have fallen to the eaſtward of the great channel of Macao coaſt, the iſlands to the ſouthward, as alſo of the Great Ladrone, which being doubled, ſteer N. W. to approach the Iſland Miroo; from whence you proceed, as it has been ſaid already.

When the currents ſet you to the eaſtward, within ſight of the Ladrone and Lema iſlands, you may know them from thoſe on the weſt ſide by means of their latitude, becauſe the ſouth point of Great Ladrone is 30′ more northerly than that of iſle St. John, a difference which cannot eſcape any obſerver. Beſides this, the ſize of the weſtern iſlands (each of which appears more extenſive than thoſe to the eaſtward) and their different bearings are more certain ſigns than the quality of the ſoundings.

The Lema iſlands extend about 30 miles to the eaſtward of the Great Ladrone; ſhips that are late in the ſeaſon coming by the eaſtern paſſage, or the eaſtern part of the China Seas, always endeavour to come in by the Lema iſlands.

According to ſeveral reports, the different channels which are formed by the Ladrone and Lema iſlands are deeper, and not ſo full of dangers as the paſſages between the weſtern iſlands; yet it is not prudent to enter therein without a coaſting pilot, which you will have come off to you on firing of guns. For want of this, the ſafeſt way will be to ſail to the ſouthward of them, even though the wind is contrary, ſince you may fetch the road of Macao by favour of the tides.

Whether you fall to the eaſtward or weſtward of theſe iſlands, the ſoundings will always ſhew their nearneſs, and you generally meet with them 16 or 18 leagues from the land.

## SAILING DIRECTIONS FOR THE RIVER OF TIGRIS OR CANTON RIVER.

By Captain JOSEPH HUDDART, 1786.

"THE RIVER OF TIGRIS is by no means a difficult navigation, yet many ſhips of late years have got aground, from the ignorance of the pilots who belong to Macao, and many of them know very little of the river; yet the Mandarins will not change them; they muſt take the ſhip (they brought up) down again; they ſay government has admitted them, and they muſt know the river.

"If between Macao road and the Bocca Tigris he comes into ſhoal water or gets you aground, it is ſaid to be upon Lintin Bar, though I have not yet been able to find any ſuch bar in the channel frequented by our ſhips: indeed I regret much that I had not a few days in the cutter between Macao and the Bocca Tigris, yet I can for the information of the mariner ſay, that though there is a great deal of ſhoal water, eſpecially on the weſtern ſide of the channel, yet there is undoubtedly a very fine channel.

"The

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" The beſt of the pilots in weighing from Macao road ſteer to the north-eaſtward, giving *Keeough* (a hummocky point on the weſtern ſhore, bearing about N. by E. 3 or 4 leagues from the Nine Iſlands, and nearly abreaſt of Lintin) a birth of about 5 miles. The lead is the beſt guide from Macao to the Bocca Tigris, taking the ſoundings from the weſtern ſhore, and keeping in 4 or 5 fathoms, as it is high or low water; and being, as was ſaid before, about 5 miles to the eaſtward of Keeough, and about 6 to the weſtward of Lintin, in from $4\frac{1}{2}$ to $5\frac{1}{2}$ fathoms, according to the tide, direct your courſe about N. N. W. keeping in 4 to 5 fathoms, as above, and hauling to the northward as you ſhoalen, or to the weſtward as you deepen your water. If in the day-time, you will ſoon have ſight of *Lankeet* right a-head, which keep about N. N. W. from you, or in one with *Tycocktow*, till you are within 3 or 4 miles of Lankeet, which will take you up in the above ſoundings: the channel is deeper to the eaſtward, but it is ſafer, eſpecially in the night-time, to borrow and take your ſoundings from the weſtern ſhore, and not come into more than 5 fathoms low water, leſt you croſs the channel, and get entangled, as ſome of the pilots have done.

" Being from 3 to 6 miles below Lankeet, with bearings as above, ſteer more to the northward towards *Chuenpee*, ſo as to give *Sampanchow* from a half to a mile birth, leaving it on your larboard hand: this iſland is bold on the eaſtern ſide; I ſtood cloſe in with it in the cutter, and had 5 fathoms, the channel from that to the eaſtward 3 miles wide. When abreaſt of Sampanchow haul more to the weſtward, ſteering about N. W. by W. towards *Anunghoy*, giving the point Chuenpee a birth of $\frac{3}{4}$ of a mile, (this point is alſo bold cloſe to the rocks) and you will have deepened your water to 9, 10, or 12 fathoms.

" In ſteering for Anunghoy (where there is a fort upon the point) keep in a fair way; the channel here is clear and ſhoalens gradually on each ſide.

" Being near Anunghoy, keep mid-channel between that head and the rocks off the *Wantongs*, where you will find 23 fathoms water. The Wantongs are two iſlands ſituated near midway between Anunghoy and the weſtern ſhore; on the principal or northernmoſt one there is a fort from which the Mandarin comes off to examine your ſhip, and whether you have a proper *Chop* which the pilot is accountable for. This is called the Bocca or *Mouth of the* Tigris: and where the pilot, if calm weather, or the commander will permit him, engages 20, 30, or 50 ſampans, or boats, at one dollar each, to attend and tow the ſhip, if neceſſary, on her paſſage up to Whampoa; he alſo engages ſome of thoſe beſt acquainted with the river to proceed before, and lay upon the different ſhoals, who with a long bamboo keep ſoundings in about $2\frac{1}{2}$ or 3 fathoms upon that ſide of the ſhoal on which the ſhip is to paſs: if he ſuppoſes the ſhip is coming too cloſe, and the pilot has not taken proper notice of his ſoundings, he beckons with his hat, as was the caſe going down with the *Royal-Admiral* in a calm with boats ahead, the pilot immediately ordered to put anchor, brought up with a bower, and did but juſt ſwing clear of the lower ſhoal of the firſt bar.

" Should it be night-time when you reach the Bocca, the ſhip muſt anchor below the fort, till day-light, for the Mandarin to examine the ſhip, and leave a man or officer on board to proceed with the ſhip to Whampoa.

" Having paſſed the fort of Wantong, in a fair way between that and the north point of



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Anung hoy, you may continue on to the north-north-weſtward till you bring the weſtern point of Lankeet and the rock off the Wantongs in one, bearing S. 12° E. which keep in one ſteering about N. by W. to avoid the lower part of the bank *Tawlangsaa*, till you bring the eaſtern part of the trees of *Lammee*, ſituated on the low grounds, in one with *Seechetow* or Leſſer Pagoda, bearing N. 36° W. You may then ſteer N. W. by N. ½ W. for the Leſſer Pagoda, keeping Lammee as above, till the Mount on Tiger iſland bears about S. W. when being abreaſt the height of the ſhoal *Tawlangſaa*, you may haul more to the weſtward till the middle of the ſaid trees are in one with the leſſer Pagoda bearing N. 36° W. (to avoid the bank *Sawchee*, which you leave on your ſtarboard hand), go not to the northward of this leading mark, till you have brought the hummocks on *Tycocktow* over the Gully in Tiger iſland bearing S. 14° E. which keep ſo till below the Second Bar, where the leading marks will bring you in a fair way. Ships lay here to complete their cargoes outwards, and may anchor any where between the two creeks from one to two cables length off the eaſtern ſhore.

" The general ſoundings of the SECOND BAR are about 3½ fathoms at low water; it is but narrow, and rendered more difficult on account of two ſmall Knowls, with each about 8 feet water leſs upon them than there is on each ſide; ſhips generally paſs between them and the north-eaſt ſhore. There is ſuch a ſameneſs in the Paddy grounds, that nature is deficient in providing proper objects to direct a ſtranger how ſafely to avoid them on a full tide, when nearly even with the Paddy grounds a ſhip at 18 feet water may go over them, but the pilots always lay ſampans upon them, and which (or buoys) is the only ſafe mode in paſſing this bar for a ſhip of a great draught of water.

" From the Second Bar keep the north-eaſt ſhore diſtant about ¼ of a mile, having recourſe to your lead, (there being ſeveral knowls on the ſouth-weſt ſide) till you bring the *Chop-houſe* on the ſouth-weſt ſide, (being ſituated on the low grounds, cloſe by the ſhore with ſome trees about it) to bear about Weſt; then you will be nearly abreaſt of the ſouth-eaſt part of the iſland oppoſite, which leave on your ſtarboard hand, and haul about half-way over from the ſaid iſland towards the ſouth-weſt ſhore, to avoid the lower ſhoal of the FIRST BAR, which hath not more water upon it than 2 fathoms at low water. Upon this ſhoal *Whampoa Pagoda* is ſeen over the ſlack, within the hummock point of *Danes Iſland* bearing N. 72 ½ W. The ſmall hill to the northward of the eaſt point of Danes iſland, being between the eaſtern dents of the larger mountain in the country, bearing N. 55° W. Conſequently to avoid the ſhoal, the Whampoa Pagoda muſt be kept ſhut in behind Danes iſland, and the ſmall hill muſt be brought to the northward of the eaſternmoſt dent, till the Chop-houſe is to the ſouthward of the hummock, or bearing about S. ½ W. when immediately haul to the northward towards the weſtern point of the iſland, which is bold, eſpecially if the flood tide runs ſtrong; it ſets to the weſtward, and may haul you upon the lower part of the reef that forms the ſouth-weſt ſide of the bar, and extends conſiderably from ſome ſmall iſlands to the ſouth-eaſtward, all which you muſt leave on your larboard hand: on the lower part of this reef, the Chop-houſe in one with the leſſer Pagoda bearing S. 12° E. you will have 2½ fathoms at low water; therefore you ſhould get to the northward of the

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point before you bring the Chop-houſe to the eaſtward of South, when you will be near the weſt part of the iſland oppoſite to it which is bold; and when you have got ſo far to the northward that the dents in the larger mountain before mentioned are over the hill above Danes iſland, bearing N. 57° W. you may keep thoſe marks until abreaſt of the ſecond Chop-houſe which is on the north ſhore; this will carry you clear to the ſouthward of a Knowl; you may now keep in a fair way for Danes iſland, which is bold, and may moor abreaſt of the upper part of ditto, and the lower part of WHAMPOA ISLAND.

" The variation of the Magnetic Needle, I have not been able to determine to my ſatisfaction; it varying above a degree in different parts of the river; whether from attraction on board the veſſel (as I never took an azimuth on ſhore) or from attraction of mineral ſubſtances in the neighbourhood, I cannot pretend to ſay; having found both to have effect on the direction of the needle; but the mean of three obſervations was 0° 25′ Eaſt; yet I took an azimuth on board the *Eſſex* about 5 miles below Lankeet, and found by that azimuth compaſs 0° 40′ Weſt variation. However it is certain the variation is ſmall. The tides here are very irregular, which will always be the caſe in rivers or inlets, ſituated near the Tropic, when the Moon has great declination.

" The time of high water, or rather the end of the ſtream of flood (for it is high water from 1 to 2 hours ſooner by the ſhores), is at 1 o'clock $\frac{1}{4}$ near Lankeet iſland, at 2 o'clock near the Second Bar, and to the ſouth-eaſtward of Whampoa iſland at 2 o'clock $\frac{1}{4}$, on full and change days: but when the Moon has great declination it may deviate an hour or more from this time; and you will have only one principal ebb and flood in 24 hours, which at the ſtrength may run between 3 and 4 knots, and continue 7 hours; the other ebb and flood are weak, probably not one knot, and of ſhort duration; but this irregularity is greateſt when the Moon has higheſt declination in the quadratures, and ariſes from the ſame cauſe as effect the tides on Tonkin bar, mentioned by Mr. *Dalrymple* in the book delivered with his Charts, taken from the Philoſophical Tranſactions, and too tedious to treat of in this place."

## DIRECTIONS FOR SAILING TO CHINA, BY THE EASTERN PART OF THE CHINA SEAS.

IF by any unforeſeen accident your voyage is prolonged, or by a too late departure you are hindered from making Poolo Condore till the end of the weſterly Monſoon, the courſe deſcribed in the preceding ſection will not be ſafe. The changeable winds and frequent calms, which uſually precede the changes of the ſeaſon, make it neceſſary to take the following precaution.

From within ſight of Poolo Condore endeavour to make Poolo Sapata, as aforeſaid; then ſteer N. E. as far as 13° of latitude, to avoid the rocks ſpoken of in the ſame ſection.

From this ſituation ſteer N. E. by E. to get ſight of the north part of the iſland LUZON, or LUCONIA, as we have named it; upon approaching this iſland you muſt keep a good look-out for the ſhoals which lie along the coaſt; you may perceive the breakers in the day-time, but in cloudy weather, or in the night, you run in danger of being loſt. This

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accident may be prevented by getting to the northward in time, at leaſt into latitude of 17° North, in order to get beyond the parallel of the ſhoals, and then ſail toward the coaſt as far as within ſight of Cape Boxeador, commonly called Cape Bojador.

The ſouthernmoſt of theſe ſhoals, called *Mirabella*, lies in 14° 24′ latitude ſouth, 14 or 15 leagues from the weſt coaſt of Luconia; to the northward of this, and about the ſame diſtance from Luconia, lies the *Marſingola*, called by the Engliſh *South Marona*, in 15° latitude; and 20 leagues farther North is the ſouth end of the *Bolinao* or *North Marona*; this lies 21 leagues off the coaſt, and extends about 18 to the N. E. by N.

The SCARBOROUGH SHOAL lies, according to the Spaniards, about 66 leagues to the weſtward of Luconia; it extends above 20 miles from North to South, its ſouthernmoſt end being in 15° 5′ latitude. On this ſhoal the ſhip *Scarborough*, Captain *D'Auvergne*, ſtruck, September 12, 1784.

"At day-light," ſays the captain, "the rocks appeared frightful, though it pleaſed God the ſhip was on the ſea ſide of the ſhoal, which is at leaſt 2 leagues over, and 8 long. On the eaſt ſide of the ſhoal the rocks are almoſt as high as thoſe of Scilly, and a terrible ſea breaks over them: on the weſt ſide they are no bigger than a boat. They ſeemed to lie about N. N. W. and S. S. E. I think the *Scarborough* was near their north end, ſeeing the water blue to the northward of them, and rocks were ſeen S. E. by S. 3 leagues from the ſhip."

"That my misfortune may be a warning to others who have the honour to navigate the honourable company's ſhips in theſe ſeas, and intend to go on the coaſt of Luconia, at the latter end of the S. W. Monſoon, in order to ſave their paſſage to Canton which is the ſafeſt way; I adviſe them not to come to the northward of latitude 14° 24′ North, before they are ſure of being within the ſhoal; but if they do not intend to go on the coaſt of Luconia, then I adviſe them not to make more than 5° * 30′ Eaſt meridian diſtance from Poolo Sapata."

On this ſhoal there are three ſmall rocks above water, reſembling, at a little diſtance, *Negroes heads*; the *Scarborough* went cloſe to one of them, and near the three. Note that Captain *D'Auvergne* in his account has confounded this ſhoal with the Marſingola or South Marona.

When you approach the coaſt of Luconia you muſt not expect to find ſoundings here as in moſt other places, whereby to know the nearneſs of the coaſt; its ſteepneſs prevents your getting ground, even at a ſmall diſtance from the ſhore; but the land is high, and may eaſily be ſeen 12 leagues at ſea.

From within ſight of Cape Bojador, in latitude 18° 42′, you ſhape your courſe towards the coaſt of China; and herein you muſt be very careful to avoid the Praters.

In order to deſcribe the relative ſituation of the Praters and the coaſt of Luconia, we ſhall have recourſe to the account given by a learned navigator, Mr. *George Robertſon*, who went that paſſage in the ſhip *General Coote*, October 1788; it will ſhew likewiſe the moſt eligible

* The Scarborough ſhoal lies about 8° Eaſt of Poolo Sapata.

track

track to take at that time of the year, with the great riſk there is of falling to leeward, after leaving Luconia for the Coaſt of China.

Point Capones, the firſt land made on the coaſt of Luconia, lies in about 15° 27′; from this point northward there appears another termination or point, and between the two the land is remarkably high, and ſhews like a ſaddle, which may be ſeen 26 or 27 leagues in clear weather. To the northward of that point the land trenches away, and forms a deep bay, on the north-weſt part of which there is a prodigious high mountain, which can be deſcried at 30 leagues diſtance in a clear day. The coaſt hereabouts is ſteep-to, and bold, with much of what is called gulf-weed. There are 2 or 3 ſmall iſlands lying about 4 miles off Point Capones; between them and the coaſt you have 40 and 35 fathoms; there are likewiſe ſoundings all along from Mirabella iſland to the northward of Capones, when within 2 or 3 leagues of the ſhore.

The coaſt of Luconia from Point Capones to Cape Bolinao, 29 leagues farther North, lies nearly upon a meridian; the land gradually gets lower from the high mountain to the cape, which is of moderate height. To the ſouthward, there are ſeveral ſmall iſlands, and northward of it the land trenches to the eaſtward, forming a deep bay, in the bottom of which appears again a very high hill, which may be ſeen very far off.

October 9th, departure was taken from Cape Bolinao, and 3 days after being, by chronometer, nearly in the ſtream of the Praters ſhoal, and at midnight within a few miles of its latitude, wore and ſtood to the ſouthward till 4 A. M. wore again, and ſtood cloſe hauled to the N. N. E. till day-light, when we ſaw the ſhoal right ahead bearing from N. by E. to N. W. by N. diſtant 7 or 8 miles. The force of the current in theſe 3 days had been 80 miles to the weſtward; So that late in the ſeaſon the greateſt attention is required in ſtretching off from Luconia, eſpecially when ſhips are obliged to leave it as we were from Cape Bolinao. I would therefore adviſe not to leave the coaſt till in latitude 18° North, if that parallel can be gained. The *Louiſa* left the coaſt in 17° 30′, and paſſed the north-eaſt point of the Praters rocks about half a cable's length: ſhe put in ſtays, and fortunately came about, otherwiſe would infallibly have been loſt from the great error of her reckoning."

The Pratas, or the Praters Shoal, as the Engliſh call them, ſtand, according to Mr. *Robertſon*, between the latitude of 20° 38′ and 20° 52′ North, extending Eaſt and Weſt about 15 miles, from longitude 116° 39′ to 116° 52′ Eaſt of London. On the north-weſt part, about 3 miles from the edge, there is a low iſland in latitude 20° 47′; it is pretty large, full of low ſhrubs, and can be ſeen about 10 or 11 miles from an Indiaman's poop.—The breakers, if they be always as they appeared when this gentleman ſaw them, may be deſcried at 7 or 8 miles, and from the maſt-head at nearly 10 miles. The ſouth part of the ſhoal lies E. S. E. and N. N. W. in an even line, and is a continued range of breakers, which are ſteep to the very edge. The weſtern ſide runs N. N. W. and S. S. E. it did not break when the *General Coote* ſaw it. The north and eaſt parts ſeemed to form a right angle." I did not ſee them break on any part," concludes Mr. *Robertſon*, " nor was there any broken water in the centre of the reef; it appeared much diſcoloured, and looked as if it was tolerably deep water. From the *Reſolution's* account, who made the north-eaſt part, they

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they heard the breakers before they ſaw them; ſo that I imagine, at times, all the ſides of it break, according to the direction of the wind."

The PRATAS SHOAL, according to M. *D'Après*, is ſituated 86 or 87 leagues N. W. by W. of CAPE BOJADOR, and ſtretches 6 leagues from Eaſt to Weſt; at the north weſt part of it lies a ſmall iſland about 1¼ league in length from N. E. to S. W. the whole of this ſhoal is dangerous by the rocks ſcattered within: they reckon its breadth to be 4 leagues North and South, in the eaſtern part, and only 2 on the weſt ſide; the anchoring place is to the N. E. of the iſlot whoſe latitude is 20° 55'. The bank is ſteep-to on all ſides, except to the North and N. W. where you get ſoundings at a league diſtance.

This ſhoal is ſo much the more dangerous, as you do not perceive the iſland in coming from the ſouthward, or from the eaſtward; you only diſtinguiſh the rocks 2 or 3 leagues off, ſo that to avoid them, you muſt, in ſailing from Cape Bojador, ſteer N. W. by N. till in the latitude of 21° 30' North, then ſteer W. N. W. to make the Coaſt of China, which you may range till within ſight of PEDRA BRANCA, ſituate in 22° 6' latitude*, and about 6 leagues from the main. This rock is eaſily known by its whiteneſs; it is ſafe and ſteep-to on all ſides: you may paſs between it and the Coaſt of China; the leaſt depth is 15 fathoms. From hence ſteering W. by S. you preſently ſee on the ſame point, the Lema Iſlands, 30 miles to the eaſtward of the Great Ladrone.

The eaſternmoſt of the Lema iſlands is a long iſland, the largeſt of all, and known by the name of *Great Lema*; it is pretty high land; it lies in latitude about 22° North, and between 45 and 50 leagues W. by S. ¼ S. from Pedra Branca; two others lie to the ſouth-weſtward of it, and next to theſe is the iſland called by us the *Aſſes Ears*; the next makes like a circle or round hill, with a crack or notch in the middle, and is long to the weſtward. There is alſo four ſmall iſlands and a large rock which makes with two ſpires, not very high. Near the Aſſes ears are the *White rocks*, which may be ſeen 5 leagues off: but they make the paſſage there very narrow, having many dangers under water, and bad anchoring. About 16 miles to the weſtward of the Aſſes Ears lies the Great Ladrone heretofore deſcribed.

Whenever ſhips fall in here, the beſt way is to get between the iſlands as faſt as poſſible: and it is a great chance but you ſoon get a pilot: there is no danger, in going between the iſlands, but what is viſible. Anchoring without the iſlands may prove difficult, there being ſtrong currents which ſet to the eaſtward; and if you get between them near the Aſſes Ears, or to the eaſtward, it is better than to ſtand out to ſea again, for the current is not near ſo ſtrong among the iſlands as without. When you come within the iſlands, you will find a great many more, and ſee the Peak of Lantoe N. E. of you. Thoſe who do not chooſe this may coaſt the iſlands on the ſouth ſide, as far as the Great Ladrone, and conform to the directions given before, to reach Macao.

* 22° 20' according to Mr. *Robertſon*, who places it in 115° 13' longitude Eaſt of London, from Captain *William Frazer's* obſervations.

DIRECTIONS

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# DIRECTIONS FOR SAILING FROM POOLO TIMON TO SIAM IN THE WESTERN MONSOON.

By Monſ. D'Apres.

THE ſituation of the places, and the winds which blow from S. W. to Weſt through the Gulf of Siam, at this ſeaſon, prove the neceſſity of keeping along the weſtern coaſt, in order to ſave your paſſage, or at leaſt to render it leſs tedious or hazardous: therefore, if you ſail without Poolo Timon, you muſt from its north point ſteer N. N. W. to make the Coaſt of Malay, and then range along ſhore, in what depth you pleaſe; for it is every where ſafe, the land high, and bordered with a ſandy beach.

Poolo Varella bears N. W. 9 leagues from the north point of Poolo Timon: it is properly a large rock; but in paſſing to the eaſtward, take care of a ſmaller rock under water, about 5 miles N. E. by N. off this iſland.

If you continue the before-mentioned courſe, you will ſee Poolo Brala, called by the Portugueſe *Poolo Capas do mar*, in latitude 4° 57′ North, 7 leagues from the Malay coaſt, and 39 leagues N. N. W. ½ N. of Poolo Timon: this iſland is high, and may be ſeen 10 or 12 leagues. You may paſs on either ſide of it in 20 or 25 fathoms; if you go without all, you muſt take care of a reef, which ſtretches about ½ a league from its north point; this is the only danger about it.

The Ridang Islands lie N. W. by N. of Poolo Capas, from which the ſouth-eaſternmoſt is about 10 leagues diſtant. They are high, and many of them extend about 16 leagues N. W. and S. E. along the coaſt; and though they form a channel on that ſide, the beſt way is to paſs without all, at ½ league diſtance in 25 or 30 fathoms.

To ſail between theſe iſlands and the main land, as ſoon as you have doubled Poolo Brala, you will ſee, along the coaſt, a long barren iſland in latitude 5° 15′ North, which is called Poolo Capas da terra; you ſail along the eaſt coaſt thereof, and thence through a very ſmall channel between the two ſouth-weſternmoſt iſlands of this cluſter; the iſland to the N. E. is high and round, with ſeveral ſandy bays. In this narrow paſſage you have 9, 10, 11, and 14 fathoms water. The following extract of a journal will better inform you of the neceſſary precautions for paſſing between theſe iſlands.

"The 21ſt of June we were abreaſt of a long barren iſland, in latitude 5° 15′ North. The Charts lay down a bank along this coaſt; nothing of it, nor any ſign thereof were ſeen; we had ſoundings from 22 to 18 fathoms. About 8 P. M. we paſſed between the two ſouth-weſternmoſt iſlands of Ridang in 9, 10, 11, and 14 fathoms, ſteering N. W. by N. They are about two cables' length apart. From hence ſtood N. N. W. and ſometimes North, leaving on the right hand the other iſlands, where the depth is found between 14 and 25 fathoms, from that on the ſtarboard, to another long one which lies on the larboard, and having 22 fathoms cloſe to it. To the N. W. of this iſland there are two larger iſlands, and north-weſtward of theſe 3 or 4 iſlots, among which is one much higher than the reſt, and making like a ſugar-loaf: that neareſt to the continent is rocky



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and rugged to the northward; the north-weſternmoſt has a rocky point projecting $\frac{1}{4}$ of a league.

"In this Cluſter or Archipelago are reckoned 13 or 14 iſlands, and among them *Poolo Ridang*, which is large and high. The northernmoſt of the other two, between which we paſſed, is high, round, and has ſome ſtrands of ſand. There are 9 or 10 other iſlands to the north-weſtward, 5 or 6 leagues from Poolo Ridang, 3 of which are large, and 4 ſmall. Coming from the ſouthward you leave them on the larboard to prevent entangling yourſelf between them and the continent, as there are ſome dangers which may be ſeen off theſe iſlands. Half a league beyond theſe is the low land of Malay.

"The 23d at noon, obſerved in latitude 6° 10′ North. This coaſt treaches S. E. and N. W. a little ſoutherly; northward it is low, and forms little bays: the depth, from theſe iſles to within about two leagues of the land, is from 18 to 15, and 10 fathoms. At night you have land-breezes, and in the day-time the ſqualls are pretty ſtrong.

"The 24th at noon, the latitude obſerved was 6° 36′ North. Hence we firſt ſaw the land about CAPE PATANY. All this coaſt is low near the ſea ſide, but inland are high mountains winding with the ſhore, which is very full of bays. You have here 20 and 24 fathoms, mud." Thus far the journal.

If you ſail without the Ridang iſlands, after paſſing the latitude of the northernmoſt, haul in for the main land, which from latitude 6° 30′ North to Cape Patany, in latitude 7° 4′ North, as appears from the extract above mentioned, forms ſeveral bays, is low toward the ſhore, and hilly in the country.

Above 14 leagues off Cape Patany lies POOLO LOZIN. The winds in the weſtern Monſoon require you to keep in ſight the Malay coaſt rather than this laſt. Beyond Cape Patany the coaſt makes a great bay very ſhallow, off which it generally blows very freſh.

When you are about 4 or 5 leagues to the weſtward of Cape Patany, ſhape your courſe for the iſland TANTALAM, which you may coaſt in 12 or 14 fathoms; the north point of this iſland forms the eaſt ſide of *Ligor Bay*.

POOLO CARA, or the iſlands of Cara, being 3 in number, lie North and South, in latitude 8° 30′ North, about 7 $\frac{1}{2}$ leagues to the eaſtward of the north point of Tantalam iſland. The northernmoſt, and largeſt, has on the ſouth-weſt ſide a ſandy bay, in which, it is ſaid, may be found freſh water running into it from the top of the iſland. The ſouthernmoſt is only a large rock, which appears white, coming from the ſouthward. On the ſame ſide, about 2 cables' length from its extremity, there is a flat rock, near the water's edge.

The paſſage between theſe iſlands and the main is very good, having from 14 to 18 fathoms, 2 or 3 miles off ſhore. After you have paſſed them, ſteer N. N. W. toward Poolo Carnom, (diſtant from hence 32 leagues on this point of the compaſs) in ſoundings of 20 and 18 fathoms. Before you get the length of Poolo Carnom you will ſee, to the weſtward near the coaſt, a conſiderable group of iſlands and rocks called LAREHIN ISLANDS; and to the eaſtward of theſe an high land named by ſome *Point Lormont*.

POOLO CARMON at firſt ſight ſeems to form two iſlands, by means of a mountain ſeparated by

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by a valley, which is not perceptible above 4 or 5 leagues diſtance. This iſland may be approached as near as you pleaſe, having no leſs than 10 or 12 fathoms a league off ſhore.

To the N. W. by N. are two iſlands of about the ſame height as Poolo Carnom; the firſt, called SANCORY, is 7 leagues from Carnom; the other near the continent, named BARDA, or *Bardia*, is $7\frac{1}{2}$ leagues from Sancory. You need not go near them, but from Poolo Carnom you ſteer North toward *Cin Point* bearing about N. $\frac{1}{4}$ E. 40 leagues; this may be ſeen at a great diſtance by means of the mountains of *Penſels*, which are quite cloſe to it. Juſt at the pitch of this point are two little iſlands, and the coaſt beyond it lies moſtly N. N. E. and S. S. W. with good ſoundings in the offing. You may ſail along it without fear, till you come to the road of *Pepery*, to the ſouthward of which is a bank which projects about 4 leagues into the ſea; and it is neceſſary to keep the lead going, eſpecially if you be near it. If you do not ſtop here, after you are paſt the bank, you ſteer N. E. by E. and E. N. E. 7 leagues to anchor before SIAM BAR, making proper allowance for the tides.

The iſlands, which form the different mouths of the Menam or river of Siam, are ſo low that they can ſcarcely be ſeen 3 leagues off: the principal paſſage is known only by the coaſt's beginning there to riſe a little higher, and being more woody. The anchorage is to the ſouthward, in what depth you pleaſe.

The city of JUTHIA, capital of the kingdom of Siam, is ſituated in an iſland formed by this river, 16 leagues to the northward of its mouth.

Twenty-two leagues S. by E. from Siam bar may be ſeen *Cape Liant*, which bounds on the eaſt ſide that part of the bay which the ſailors call the GULF OF SIAM. To the northward of this cape are ſeveral iſlands of different ſizes, and many other leſſer ones to the ſouthward and weſtward. It is affirmed they are ſafe, and may be coaſted without danger.

## DIRECTIONS FOR RETURNING FROM SIAM TO POOLO TIMON, IN THE EASTERN MONSOON.

TO ſail from Siam to India, or any other part to the weſtward, you muſt wait for the eaſterly Monſoon, as the only ſeaſon in which you can undertake this paſſage.

The winds begin to vary in the month of September; and in October the Monſoon generally breaks up with violent ſtorms from the S. W. quarter, which renders the navigation of theſe narrow ſeas rather dangerous; but in November the weather is fair and ſettled; then the navigation is become ſafe and eaſy for ſuch voyages as are uſually undertaken at this ſeaſon. The currents ſet with the N. E. Monſoon on the weſt ſide of this gulf; and the reverſe during the S. W. Monſoon.

When you ſail from the road of the bar, ſhape your courſe to round Cape Liant and the iſlands which ſurround it; then ſteer S. E. by E. to make *Poolo Way* in latitude 9° 35′ North. You may approach them, as they are very high and ſafe without.

Between Cape Liant and theſe iſlands the ſoundings are mud, from 45 to 35 fathoms juſt



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in ſight of them. If in their latitude you do not ſee them, and find the depth from 50 to 45 fathoms, it is a ſign that the currents have ſet you to the weſtward, as it generally happens in this Monſoon; then you muſt luff up, and endeavour to ſee *Poolo Panjang*, of which it is neceſſary to get a ſight, although you have ſeen Poolo Way; then bear away: you have 35 fathoms, mud, 5 leagues to the weſtward. This iſland is high, and encompaſſed with ſeveral little iſlands; it is proper to bring it to bear North, before you begin to bear away; then you muſt ſteer S. by E. for Poolo Timon.

It ſometimes happens, that, in croſſing the gulf, one falls in with the Malay Coaſt ſooner than expected; therefore look out in time. Some navigators give, as a ſign of your approaching it, ſoundings of coarſe ſand, whereas afar off they are mud, but this token is very uncertain. The latitude of *Poolo Capas* once paſſed, all the Malay coaſt is ſafe, and the decreaſe of the depth is a ſufficient caution to prevent your running aſhore there in the night time.

If, on the contrary, you are in leſs than latitude 5° North, and have 45 fathoms, it will then be neceſſary to ſtand in with the land, to get into leſs water; then you will not fail to make Poolo Timon, and thence Poolo Aore, from whence you ſail towards the ſtraits of Malacca, and, if you intend to paſs that way, you conform to the preceding inſtructions.

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## DIRECTIONS FOR SAILING IN THE WESTERN MONSOON FROM SIAM TO CHINA, TO THE WESTWARD OF THE PARACEL.

By M. D'APRÈS, with ſome Additions, &c.

### 1° ALONG THE *COAST* OF *CAMBOJA*—*ISLANDS* OFF THE *COAST* OF *TSIOMPA*,

SAILING from Siam Bar in the months of June, July, and Auguſt, you ſtand toward the weſt coaſt of the gulf, and keep along it as far as Cin point; from thence ſteer S. E. till in the latitude of Poolo Panjang; then Eaſt, to get a ſight of it. This laſt courſe is not always neceſſary, as the currents, which run to the eaſtward, often ſet you in ſight of Poolo Way and Poolo Panjang ſooner than you are aware of; therefore proper precautions muſt be uſed. You have 30 fathoms juſt within ſight of the latter iſland, which decreaſe as you come near it; but obſerve that this depth is likewiſe found in many other parts of the gulf, out of the ſight of land.

As ſoon as you have paſſed Poolo Panjang, the courſe is S. E. by E. 23 or 24 leagues to POOLO OOBY, ſituate exactly at the eaſtern extremity of the Gulf of Siam, in 8° 34′ North. Its height renders it perceptible at a great diſtance, and it is overſpread with various mountains making like ſaddles. Coming from the weſtward or S. W. theſe mountains bearing N. E. appear ſeparate, the ſouthernmoſt much higher than the reſt, and the northernmoſt being the loweſt; but when Poolo Ooby bears North they are in one. You may get freſh water

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water on the north ſide of this iſland, though the beſt anchorage on the eaſt ſide, oppoſite a little bay, the iſlot off the ſouth eaſt point bearing South.

Between Poolo Panjang and Poolo Ooby you have 25, 20, 18 and 16 fathoms, and as you get this latter depth you are near Poolo Ooby. Coming from the weſtward, when you have 28 or 25 fathoms, you are a good way from it.

Veſſels bound from Batavia, Bantam, or Malacca, to Camboja river, as well as from Siam, ſhould make Poolo Ooby, that they may be far enough to windward to take advantage of the S. W. winds, which blow very ſtrong in the months above mentioned; then the currents alſo ſet ſwiftly to the eaſtward, ſo that, if you fall to leeward, it will be exceedingly difficult to regain the coaſt.

They reckon 40 leagues E. $\frac{1}{4}$ N. from Poolo Condore, heretofore deſcribed, to Poolo Ooby.

If you are bound to *Camboja River*, after doubling Poolo Ooby, in 15 or 16 fathoms, ſtand to the northward, to make the main-land, and when the ſouthernmoſt point of it, which is low and covered with large trees, bears N. W. then ſteer E. by N. and E. N. E. keeping in a depth of 8 or 10 fathoms, mud. About 5 leagues off ſhore, there is a bank of hard ſand, with no leſs than 3 fathoms: however this need not hinder you from continuing your courſe to the northward (but allowing it a birth, in large ſhips eſpecially, as you ſoon after meet with better ſoundings, in 5 or 6 fathoms,) and you may approach the land as near as 4 fathoms, till oppoſite a river whoſe banks are planted with trees higher than thoſe of the other parts of the coaſt. This river bears W. S. W. 22 or 23 leagues from that of Camboja.

Steering N. N. E. from it in the aforeſaid depth, you will ſee the mouth of another river, from whence the coaſt extends eaſtward as far as that of Camboja. This coaſt is very low, and without any particular mark; therefore you muſt keep near it, to obſerve its bearing, and as ſoon as you find it to vary from Eaſt, you may be ſure you are off

Camboja River, at the entrance of which you have 5 fathoms. Then you may perceive two points as well as an iſlot in the middle of the channel, and before its mouth two banks which, with the iſland, form a triple paſſage: the weſtern one is called *Baſack* or *Caſſaba River*; the ſecond, between the two banks, has 14 or 15 feet water, hard ſand; and the third, or eaſtern paſſage, has 18 feet in the height of the ſprings. To go between the two banks you ſteer North, and N. by W. in order to keep the weſt point on board, near which there are 34 and 36 fathoms, and you will deſcry two little iſlands, which muſt be left on the ſtarboard, to coaſt the weſtern ſhore, for the ſpace of 48 leagues. Thirty leagues above its mouth, the river divides into two branches: one of which is a narrow channel, called *Mouſtique Channel*, which you leave on the larboard, and ſail through that on the ſtarboard, keeping always on the weſt ſide, till you come before the town. The ſhips which ſail up this river, muſt be well provided with cables, anchors, and hawſers, becauſe they muſt warp above 50 leagues of the way. " Theſe are the directions I find in ſeveral memoirs concerning Camboja river; but to enter it with ſafety, a pilot well

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well acquainted is abſolutely neceſſary, on account of the annual ſhiftings of the banks in this river."

Camboja River has many other mouths to the northward: beyond that above deſcribed, the coaſt extends rounding to the N. E. as far as a narrow entrance called the *Eaſtern Channel*; then it trenches N. by W. as far as the *Japaneſe Channel*, off which lies a little iſland called *Crab Iſland*.

N. N. E. of Crab iſland in 10° 35′ north latitude is ſituated *Cape St. James*, or *Sinkel-Jacques*, a high broken land, ſeen 10 or 11 leagues at ſea, and which, notwithſtanding ſome rocks or iſlots near it, may be coaſted as cloſe as you chooſe, in 5 or 6 fathoms. The coaſt beyond it is low, ſtretching N. E. by E. and forms ſeveral ſandy coves, with two points, on which are ſome downs of ſand; the land here making in hillocks. To the northward of the ſecond ſandy point, there is a great bay, on the eaſt ſide of which lies a ſmall iſlot, of a moderate height, called *Cow Iſland*.

Three leagues off this coaſt, in 10° 50′ latitude North, lies a dangerous ſhoal upon which *Matthew de Britto*, a Portugueſe captain, was ſhipwrecked: it may be ſeen $\frac{1}{4}$ league off, in 14 fathoms, gravel and ſhells. To avoid this danger, you muſt come no nearer the land than 4 leagues, oppoſite 3 little white hills by the ſea-ſide. The mark for the ſhoal is a ſingle mountain, higheſt at the eaſt end, and much lower at the weſt end, which has a peak, at the foot of which appears Cow iſland, like a ſmall round hillock; when the higheſt part of this mountain and the hillock are in one, bearing N. by W. BRITTO REEF is in the ſame direction. Moreover to avoid this danger with greater certainty, you muſt keep in 16 or 17 fathoms, which will carry you far enough without it.

Ships not bound to Camboja River, but only to Tonkin or China, are not obliged to make Poolo Ooby, nor to approach the coaſts about the mouths of that river; it is ſufficient that they ſhould get a ſight of Poolo Condore, and thence, whether paſſing on the weſt or eaſt ſide, they ſtand for Cape St. James, and ſail along the coaſt of Tſiompa.

From Poolo Condore, towards this coaſt, you have ſoundings in 20, 25, 16, and 15 fathoms.

About 23 leagues N. E. of Poolo Condore, and 12 leagues from Crab iſland, you meet with a bank of 13 fathoms water, diſcovered by a Dutch ſloop.

Seven leagues N. E. by E. of Britto Reef you ſee *Tiger Iſland*, or, as it is called by the Dutch, *Steen Clippen*, which lies very near a great ſandy point on the COAST OF TSIOMPA. Coming from the northward, this point makes like an iſland upon which are ſeveral white ſpots; but Tiger iſland being barren and rocky, is eaſily diſtinguiſhed from any other point. The channel between them is not navigable, on account of the ſand banks and rocks with which it is obſtructed: theſe rocks riſing like pillars and columns, yield a ſtrong repreſentation of a city in ruins, with a ſquare ſteeple in the middle of it.

The coaſt between Cow and Tiger iſlands forms a great bay or bight, into which ſeveral rivers have their openings.

Forty-ſeven leagues S. E. of Tiger iſland, in 10° 32′ North latitude, lies POOLO CECIR, ſurnamed DO MAR, or of the ſea, to diſtinguiſh it from the other Cecir near the ſhore, named

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named from that ſituation, *Poolo Cecir da terra.* Cecir do mar lies N. E. and S. W. about 2 leagues in length; the land is dry and barren, of a yelloviſh colour, the middle riſing in a mountain, to the ſouthward of which are ſeveral hillocks. About $\frac{3}{4}$ of a league from the north-weſt point there is a large rock, and within gun ſhot of the north-eaſt point a little iſlot whoſe ſoil is reddiſh. It is encompaſſed with rocks above and under water; and a ſand-bank reaches from theſe rocks to the iſland.

Half-way between Tiger Iſland and Poolo Cecir do mar lies the Bank of the *Court of Holland,* whoſe ſhoaleſt part, according to report, has but 4 fathoms water. "In returning from China, I anchored cloſe to it in 25 fathoms, ſmall ſtones; from thence, having ſeen Poolo Cecir do mar, I found that the north part of it bears N. N. W. of this iſland." Ships from the northward or ſouthward may avoid this bank by ſailing along Poolo Cecir do mar, at 2 leagues diſtance, in a fine channel like that between this bank and the Coaſt of Tſiompa, where you find 23 or 24 fathoms, ſand mixed with ſmall ſtones.

E. N. E. of Poolo Cecir do mar, diſtance 17 leagues, there is an iſland, with two leſſer ones, which ſome navigators call the *Three Brothers.* The largeſt is of a middling height, and a reef ſtretches off from its ſouth point, 15 leagues N. E. From this iſland, in 11° 10′ North, lies a ſmall iſland, a little higher; all the old charts draw from one to the other a dotted line to repreſent the ridge of a bank, which ſeems to indicate that the bottom between theſe iſlands is dangerous: the Portugueſe call this bank *Rabo de Lacrao,* or *Scorpion's tail.*

Ten leagues South of the Three Brothers, lies Poolo Sapata, which has been heretofore deſcribed.

## 2° Along the *COASTS* of *TSIOMPA* and *COCHINCHINA.*

POOLO Cecir da terra, mentioned in the preceding article, lies 8 leagues E. N. E. from Tiger iſland, and about 5 miles off the high Cape Cecir: it is low barren land, and ſurrounded with rocks both above and under water.

Between Poolo Cecir da terra and Tiger iſland there is a large bay extending N. N. E. about $4\frac{1}{2}$ leagues, as far as Boden river, and which would be a good place for refreſhments, if the people were of a more ſociable diſpoſition. At the ſouth-weſt point of this bay, there is freſh water, about 5 miles to the northward of Sandy point. When *Cecir Bay* bears W. by N. $\frac{1}{2}$ N. 6 or 7 leagues, you may ſee to the northward two or three little hills, like ſugar loaves, and on the ſouth ſide a long ledge of ſand which borders, as it were, the whole coaſt; theſe marks make the bay eaſily know from the others.

Near Cape Cecir there is a dangerous reef called *Breda-ſhoal,* projecting out from Poolo Cecir da terra; to avoid it you muſt paſs 3 leagues without the iſland, for nearer the water ſhoals, and the bottom grows foul.

Between the bank of the Court of Holland, and that of Matthew Britto, you have 20 and 22 fathoms at $4\frac{1}{2}$ leagues off ſhore. If thence you ſteer N. E. and N. E. by N. you find

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find but 15 and 12 fathoms, ſand mixed with ſmall ſtones; and then Tiger iſland bears N. W. If the courſe be continued, the depth increaſes again to 18 fathoms off Cecir Bay, and gradually to 24, about 3 leagues off Poolo Cecir da terra, ſometimes ſand, and ſometimes ſtony ſoundings.

If you ſail 1½ league off ſhore, within the bank of Matthew Britto, you have 9 and 10 fathoms as far as Tiger iſland, and from thence to Poolo Cecir da terra it deepens preſently from 10 to 14 and 15 fathoms, when it ſhoals again, if you continue to ſail along ſhore, 10, 9 and 8, and within Cecir Bay to 6 fathoms.

PADARAN BAY lies in 11° 25′ or 27′ north latitude, about 10 or 11 leagues to the north-eaſtward of Poolo Cecir da terra; and farther on, in 11° 52′ is the *Falſe Cape*, VARELLA, commonly AVARELLA, where the COAST of COCHINCHINA begins; it is high, with a rock at the top of it, like a centry box. The Portugueſe give it this name *Falſe*, to diſtinguiſh it from another to the northward, very much like it. Cloſe by the high land, you perceive a long ſandy valley.

Between Padaran Bay and Falſe Varella there is a bay extending N. by W. whoſe bottom is exceedingly foul; and at its mouth you meet with an iſland equally encompaſſed with dangers.

The entrance of COMORIN BAY is to the northward of the Falſe Cape Varella, and extends N. W. by W. Going in you find 40, 35, and 30 fathoms: the north-weſt ſide is very rocky and full of ſhoals; and the adjacent lands appear double, with many points and bays.

About 9 leagues from Falſe Cape Varella lies the ſouth point of WESSEN'S BAY; it is known by whitiſh ſpots upon the land to the ſouthward of it, as alſo by ſeveral iſlands near it. Among the moſt remarkable is *Fiſher's Iſland*, which lies near the north point of the bay, and ſeems very barren. Near this bay you perceive to the weſtward, a hill, which in clear weather reſembles Cape Varella, but it lies more ſoutherly, and generally is obſcured by the clouds.

PAGODA BAY lies a little to the North of Fiſher's iſland, as well as *St. Philip'*, or *Sir John Phipp's Bay* and *Schuyten Bay*, which appear barren. Hereabouts the land is of a moderate height and ſteep, but in the country it is higher. Between this bay and Cape Varella you perceive on the ſhore ſeveral downs of white ſand.

The True CAPE AVARELLA is ſituated in the latitude of 13° 7′ or 8′ (or rather 12° 52′) North, and is known by a high hill on whoſe top is a rock like a pyramid or tower, which may be ſeen at a great diſtance, either from the northward or the ſouthward. Within this cape the coaſt forms a great bight, whoſe extent is not perceivable till you are paſt the cape; it is ſaid that its bottom is good and ſafe in 15 fathoms, and that you may get freſh water there; but you muſt be greatly on your guard on account of the inhabitants, who are all treacherous and robbers.

Nine leagues to the northward of Cape Varella you meet with POOLO CAMBIR DA TERRA, a long and low iſland, about 1½ league from the main, which is known by the variegated ſpots of its ſoil: to the ſouthward of it is a rock on the top of which are 4 great ſtones

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ſtones ſtanding upright, which ſeem to have been placed with great order and exactneſs. You may anchor in 12 fathoms, ſand, between the main and the iſland, and take in freſh water out of a great river, which empties itſelf near Poolo Cambir. The coaſt hereabout trenches a little more to the weſtward.

Coming from the northward, as you approach Poolo Cambir, you will ſee a hill like that on Cape Avarella; but it is farther to the South, and different in this, that when it bears S. W. by S. $\frac{1}{2}$ W. you may perceive another little hillock to the northward of it.

E. N. E. 17 leagues off Poolo Cambir da terra, upon the edge of the Paracel, lies the ſmall iſland called Poolo CAMBIR DO MAR.

*Chinchen*, or CHEMCHEU BAY, whoſe north point is ſituated in 13° 40′ north latitude, is very extenſive: it is known by a great rock, which riſes like a ſpire ſteeple out of the water, and by ſeveral hummocks a little to the northward. When you have the bay open, and it bears Weſt, about 3 leagues diſtance, you may ſee there two rocks, the ſouthernmoſt of which is divided into three, by which it is eaſily known.

To the northward of Chemcheu Bay you find the entrance of a large river, beyond which the coaſt extends N. N. W. and forms a bay full of iſlots and rocks. On the north ſide are ſeveral downs of ſand, which may be deſcried a great way off.

POOLO CANTON is in the latitude of 15° 15′* north, about 14 miles from the continent; it is about 3 leagues long, being high at each end and low in the middle, which makes it to be miſtaken at a diſtance for two iſlands. From the ſouth-eaſt part there runs a reef, for a long cannon-ſhot, on which the ſea breaks: many dangers ſurround that iſland, and the bottom is foul; therefore ſhips ſhould not approach it too near. You may ſail between the main, or *Cape Batangan* and Poolo Canton, in good ſoundings of 30 and 40 fathoms: to the ſouthward of that cape are ſeveral rocks above and under water, but keeping in the above depths you have nothing to fear.

On Poolo Canton there is freſh water, but the difficulty is to land there; whereas on the continent oppoſite the iſland there is a ſpacious river, with 5 or 6 fathoms water: *Salinbuigh*, a town on its ſouth point, may be ſeen 12 or 13 leagues. This coaſt and the parts adjacent are very populous.

Two leagues N. N. W. of Poolo Canton you ſee a ſmall flat iſlot whoſe coaſt is very foul; you muſt not approach it when you paſs between theſe iſlands and the main.

N. W. by N. about 13 leagues along ſhore, in 15° 54′ north latitude (16° 25′ in M. *D'Après*), lies the iſland of *Cham Collao*, which the Portugueſe have named *Ciampelo*; it is pretty large and high, extending N. N. W. and S. S. E. upon it are two lofty mountains, the ſouthernmoſt of which is the higheſt, and a valley full of trees in the middle. You may get freſh water on the weſtern coaſt, next the main land, whoſe ſhore is low and ſandy, and from which this iſland is about 2$\frac{1}{2}$ leagues diſtant; and can anchor in ſmall bays very convenient for that purpoſe. At the north-weſt point of the iſland are 3 iſlots, one of which is very high, and at the ſouth-eaſt point is another ſmaller than the reſt.

* M. *D'Après* makes it 15° 40′.



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South by East from Ciampelo about 3 leagues there is another middling iſland, called *Ciampelo Falſo*, from the ſouth-eaſt end of which projects a reef.

Five leagues to the northward of the true Ciampelo lies *Cape Tooron* and the entrance of TOORON BAY about $1\frac{1}{2}$ broad, and in which you find 14 fathoms water. From Cape Tooron they reckon about 6 leagues W. by S. to the bottom of the Bay, or the mouth of a large and navigable river, where you have 10 fathoms water. On this river, about 10 leagues from the entrance, and in 16° 10′ latitude North, ſtands the Town of *Faifo* or *Faifoo*, called by *Dampier*, *Quinam*, but by the natives *Hoyan*, and on the oppoſite ſhore lies the town of Tooron. Faifo is the moſt trading ſort of Cochinchina, and much frequented by the Chineſe, Tonkineſe, and other neighbouring nations: the harbour is deep, commodious, and of an eaſy acceſs. There are always five or ſix thouſand Chineſe who are the principal merchants: the Spaniards and the Portugueſe have each a church at Faifo; the French have built their's 3 miles from the place, on the bank of the river.

There is another port called *Nuoeman* (near Cape Avarella) which is very good, and from whence they export a great quantity of ſilk and beetle-nut.

About 33 or 34 leagues N. W. by N. from Ciampelo lies the bay of *Ksboa* or *Simboa*, a few leagues to the North of which ends the Coaſt of Cochinchina. Then begins the Coaſt of Tonkin.

## 3° ALONG THE *COAST* AND IN THE *GULF* OF *TONKIN*.

THE COAST OF TONKIN bounds, on the Weſt and North, the Gulf or Bay of that name, which is as often reckoned from *Cape Choomy* or Cape North, about 8 leagues N. W. by W. of Cape Tooron.

This coaſt, which was formely much frequented, being now entirely relinquiſhed by Europeans, Mr. *D'Après* owns, that he could ſcarcely meet with any inſtructions for its navigation. Nothing can fill up this deficiency better than the following remarks extracted from that very celebrated ſeaman *William Dampier*.

The GULF or BAY OF TONKIN is about 30 leagues broad, in its greateſt breadth: near the extremity of the bay there is a great quantity of ſmall iſlands, and its entrance ſeems to be ſhut by the Paracel. You may anchor there every where; in the middle, you have about 46 fathoms water, black ooze, and ſand of a pepper colour; and on the weſt ſide the ground is oozy likewiſe, mixed with reddiſh ſand.

In the bottom of the bay there are ſome iſlots very near the ſhore; two of them, more conſiderable than the reſt, are the marks for the two chief rivers, or rather for the two branches of the principal river of Tonkin: one of theſe is called *Rokbo*, which falls into the ſea in the north-weſt part of the bay, in about 20° 6′ latitude North: there is only 12 feet water in the channel at the entrance, very ſoft mud, and it is commonly uſed by the Chineſe and Siameſe.

About 1 league Weſt from the mouth of that river, is a ſmall iſland of a good height, called

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called *Fiſhermen's* * *Iſland*, which is a mark for the river; it lies about 2 miles from the ſhore, and round it you may ſafely anchor in 17 or 18 feet water.

The other branch or river is a great deal broader and deeper; this, *Dampier* calls *Domea*, from the firſt remarkable town on its banks: its opening into the ſea is 20 leagues N. E. of Rokbo, in 20° 45′ latitude North. Between the two rivers there are many dangerous ſhoals, which project above 2 leagues. All this coaſt, from Cochinchina to the Weſt, as far as China, which lies to the Eaſt, is likewiſe bordered with ſhoals and reefs ſtretching irregularly into the ſea.

The Europeans enter by this river on account of the depth of water; but there is a bar, about 2 miles wide, and the breadth of the paſſage is only $\frac{1}{2}$ mile. In ſome parts of the year there is not more than 15 or 16 feet water, at high tide, and at other times you will have 26 and 27 feet. They ſay the higheſt tides are during the North Monſoon in the months of November, December, and January, and the loweſt in the months of May, June, and July, when the South Monſoon prevails †.

The bar is hard ſand, which renders it dangerous; and by the ſhifting of that ſand at every tide, various channels are continually formed that increaſe the danger; therefore a pilot is neceſſary to enter. You can get one (upon the firſt notice of firing a gun,) at the little village of *Batſha*, which lies at the mouth of the river. In caſe you ſhould be obliged to wait for a pilot, till high water, the mark of the river is a high mountain inland, called the *Elephant*; you ſteer towards it N. W. by W. ſailing afterwards toward the ſhore, the depth decreaſes till you come into 6 fathoms water, and then you will be 2 or 3 miles from the entrance of the bar, and about the ſame diſtance from an iſlot called *Pearl Iſland*, which you keep the neareſt you can to the N. N. E. with theſe marks, and in this depth you may anchor, and wait for a pilot.

When you have paſſed the bar, the depth increaſes, and the ground is oozy. The river is above a mile broad at its mouth, but becomes narrower as you go higher up; it is about 5 or 8 leagues up this river to the village of *Domea*, where the Dutch ſhips generally lie; but the trade is carried on at a place about 100 miles from the entrance, where it is difficult ſailing up in a large ſhip.

The Coaſt of Tonkin is, more than any other part of the China Sea, ſubject to *Typhons*, which prevail in the months of July, Auguſt, and September; they happen generally at the change or full of the Moon, and are always preceded by clear and fair weather, with gentle and mild winds. Theſe, contrary to the wind common at this ſeaſon, which is S. W.

* The Dutch have given the ſame name to another iſland, about 20 leagues to the ſouthward of this.

† The entrance of this river *Domea*, as *Dampier* has named it, is what is called commonly the *Port of Tonkin*. "In the ſaid port, there is but one flood and ebb in 24 hours; and twice each month, *viz.* (when the moon is near the Equinox) there is no tide at all, but the water is ſtagnant; but with the Moon's declination there begins a tide which is greater when ſhe is in the tropical ſigns; only with this difference, that when the Moon is to the northward of the Equinoctial, it flows, when ſhe is above the earth, and ebbs when ſhe is under it; ſo as to make high water at Moon's ſetting, and low water at Moon's riſing: but, on the contrary, the Moon's being to the ſouthward, makes high water at riſing, and low at ſetting; it ebbing all the time ſhe is above the Horizon; as appears more at large, *Philoſ. Tranſact. Numb.* 162."

*See* BARLOW's *Survey of the Tide*, ſect. 6. p. 169.



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turn to the North and N. E. Before the whirlwind comes there appears a huge cloud to N. E. which is very black near the Horizon, but of a deep reddiſh hue toward the upper part; a little higher it is more vivid, and thence to its extremities it is of a pale and whitiſh colour, which dazzles the eyes. This cloud is frightful to look at, and ſometimes it is ſeen 12 hours before the whirlwind. When it begins to move on with rapidity, you may be ſure that the wind will follow immediately. It riſes impetuouſly, and blows with an amazing fury to the N. E. for 12 hours more or leſs. It is accompanied with frequent and awful lightnings, tremendous claps of thunder, and a violent deluge of rain: when the wind begins to abate, the rain ceaſes at the ſame time, and a calm ſucceeds. This laſts about an hour, then the wind turning to the S. W. nearly blows with as much force and as long from that quarter, as it did before from the N. E.

The months of November and December are extremely dry, hot, and wholeſome. January, February, and March, are pretty dry, but then you have very thick fogs, and ſometimes cold rains, in the morning; the air is alſo very cold during thoſe three months, chiefly in January and February, and eſpecially when the wind is N. E. or N. N. E. The month of April is conſidered as moderate, in every reſpect.—Let us now reſume M. *D'Après's* deſcription of the Gulf of Tonkin.

The weſt coaſt of the Iſland HAI-NAN bounds that gulf on the eaſt ſide. This iſland is large, and the land very high; it extends about 50 leagues from S. W. to N. E. and is 30 in breadth. On the ſouth and ſouth-eaſt ſides are ſome ports ſaid to be commodious; but it is adviſable not to enter them, without one of the pilots of the place, who always offer their ſervice to thoſe ſhips which they ſee coming near their coaſt.

The weſtern part of Hai-nan which faces the Gulf of Tonkin, is encompaſſed with ſeveral banks; but you may eaſily diſcover their approach by a pretty regular decreaſe of the depth. If you keep the lead going, and do not come under 15 fathoms, you have nothing to fear. Upon this coaſt there is a high mountain, which may be ſeen 20 or 25 leagues at ſea; when it bears Eaſt it appears craggy, and forms ſeveral points of different ſhapes and heights.

Ships bound to Tonkin being to the northward of Ciampelo Iſland above deſcribed, need not keep any farther along the weſt coaſt of Cochinchina; but from thence they are to ſteer N. W. having regard to the tides, leſt they ſhould ſet them to the ſouthward of Hai-nan, or on the banks off its weſt coaſt: in the firſt caſe, the ſight of land, and in the ſecond, the ſoundings will enable you to prevent theſe inconveniences, by ſteering a different courſe from that juſt preſcribed.

As ſoon as you are in the latitude of 19° North, and in 28 or 30 fathoms, if you have not ſeen the iſle of Hay-nan, ſteer N. by W. to make the *North-eaſt* or *Norway Iſlands*, the ſouthernmoſt of which lies in 20° 35′ North latitude, 13 leagues * E. S. E. of the principal river of Tonkin; they are of a middling height. In this courſe you muſt likewiſe allow for the tides, which ſometimes ſet down the gulf; if you be driven thither, and obliged to beat

* According to ſeveral Dutch navigators, the Norway iſlands lie 22 leagues Eaſt of Domea river.

up

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up again, you muſt not come nearer the bank, that lies off the coaſt, than 8 fathoms; and be careful of this likewiſe as you come nigh the river, to enter which you muſt proceed according to the directions above given.

You muſt ſail from Tonkin river, at the beginning, or at leaſt by the middle of November, when the northerly winds blow freſh; but at the end of this month, as they come from the Eaſt or E. S. E. they are againſt you, and you will be obliged to ſtay till the end of December, or beginning of January, before you can get out of the gulf, and then they blow from N. N. E. to Eaſt, being a continuation of the eaſtern Monſoon, when the currents run to the ſouthward, from 30 to 60 miles in the 24 hours.

## THE PASSAGE TO CHINA
### BETWEEN THE ISLE OF HAI-NAN AND THE PARACEL.

THE PARACEL is a great rocky bank, extending, from North to South, off the Coaſt of Cochinchina, according to moſt charts 92 leagues in length from 12° 10′ to 16° 45 north latitude, and 20 leagues more or leſs in breadth: it lies 45 leagues South of the iſle of Hay-nan, and we have been informed, within theſe few years, that this ſpace is filled with ſeveral low iſlands of different ſizes, ſome of them 7 or 8 leagues in length, and with ſand-banks, reefs, iſlots, and rocks, in many parts of it. There is a ſafe paſſage between the ſouthernmoſt iſlands of the Paracel and the north-eaſt iſland of the Scorpion's tail.

Inſtead of Tonkin, if you are bound to China, you muſt keep along the coaſt of Cochinchina, till you get ſight of Ciampelo iſland, before you croſs over to Hay-nan iſland: by this means you prevent the effects of the currents, which coming out of the Gulf of Tonkin ſet ſtrong to the eaſtward during the Weſtern Monſoon. From within ſight of theſe iſlands you ſteer N. E. by N. to make the ſouth-eaſt part of Hai-nan; you have ſoundings in 70 and 80 fathoms, 10 or 12 leagues off; and at 6 or 7 leagues, 50 or 60 fathoms.—When you make this iſland, coming from the ſouthward, you do not directly perceive any thing remarkable, except TINHOSA or *Scurfy iſland*, which is of a middling ſize, and the largeſt among many others upon the coaſt; it has on its weſt part a ſteep hill, which on the eaſt ſide ſlopes gradually to a point. They ſay that at the foot of the hill, on the weſt ſide is a little bay. The latitude of this iſland is 18° 45′ North. When Tinhoſa bears N. W. ¼ W. about 7 leagues, in 60 fathoms, you deſcry upon the iſle of Hai-nan three very high mountains, the weſternmoſt of which has on the top two hummocks, and the eaſternmoſt two others.

Three or four leagues North of Tinhoſa lies a ſmaller iſland, near the coaſt of Hai-nan, called TINHOSA FALSA, whoſe north point makes like a quoin. The iſlands between them are neither near ſo large or ſo high. The inland parts are likewiſe very high, and when you perceive the eaſt part of Hai-nan, bearing N. W. 7 or 8 leagues, it appears ſteep, mountainous, and cragged: among the reſt there is a very high mountain, which terminates with a very remarkable round bluff, or, according to the *Engliſh Pilot*, with a gap on the top

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top of it, which ſeems like an iſland. The north part of this iſland is not ſo high as the eaſtern.

From Tinhoſa Falſa to the eaſt point of Hai-nan, there are ſeveral large iſlands along the coaſt; as alſo between this and the true Tinhoſa.

The iſlands called POOLO TAYA, to the number of 9 or 10, beſides many rocks, are low and barren; the northernmoſt of them lies in 19° 47′ North, and 11 or 12 leagues to the eaſtward of the northernmoſt part of Hay-nan, between which and theſe iſlands you may paſs on occaſion; but at preſent it will be ſufficient to leave them 4 or 5 leagues to the weſtward.

About 15 leagues E. S. E from Poolo Taya, is the *Banc du St. Eſprit, (Holy Ghost Bank)* which extends about 10 leagues in length from N. W. by N. to S. E. by S. and 8 or 9 from North to South; the north edge is bordered with rocks even with the water's edge, and you have upon it 12, 10, 9, 8 fathoms water; and 5½ on its ſouthernmoſt tail.

From Poolo Taya to the Iſles of SANCIAM and ST. JOHN'S, the courſe is N. N. E. ½ E. about 45 leagues; you may eaſily know your approach to theſe iſlands by the ſoundings, which you find a good way off; and then you proceed according to the directions heretofore preſcribed.

Should you fall to the weſtward of Sanciam, and of the FALSE SANCIAM, which is next to it on that ſide, there is a rock, which at firſt ſight you will be apt to take for a ſail; but at the diſtance of 3 leagues it has the appearance of a little pyramid, and is called the MANDARIN'S CAP. As ſoon as you get ſight of it, ſtand to the Eaſt, going to the ſouthward of the Two Sanciams, and Poolo Ou-Cheou: the extremities of the former lie about Eaſt and Weſt of each other, and the latter N. E. by E. of the ſouth point of the true Sanciam.

## REMARKS ON THE PASSAGE TO CHINA, WITHIN THE PARACEL.

By M. HORSBROUGH.

JANUARY 15th, 1791, the *Anna*, Captain *Horn*, left Bombay. The 29th off Dondra head; and the 24th of February made *Acheen*. After leaving Ceylon a weſterly current prevailed, for ſome time, with winds moſtly from N. to E. In latitude 2° 30′ the current began to ſet to the ſouthward of Weſt, and we had variable winds and calms. On approaching Acheen experienced various currents N. W. and S. S. W. in croſſing the bay we were ſet 5 degrees to the weſtward. On leaving Acheen had freſh northerly winds, and a current to the ſouthward of 37′ in one day, but getting in with the land, they abated: during the day had the winds from the northward, but in the nights they hauled from the land.

Rounded *Poolo Rondo* the third day; thence to *Poolo Pera*; after having a ſtrong weſterly current, with variable winds, and hard ſqualls in the night, made it in four days.

" Left

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"Left *Poolo Penang* 10th March, and entered the *Sand Heads* the 22d. Thence to *Poolo Aore*, 7 days, the current ſetting to the ſouthward, with light northerly winds. Filled up the water at Aore, and tryed to paſs to the eaſtward of it, but the northerly winds, and a current of 1 to 2 knots to the ſouthward, made it neceſſary to haul to the windward.

"Paſſed along the ſouth ſide of *Poolo Timon*, between the ſmall iſland which lies off its north eaſt part, and another rugged iſland to the ſouthward: the channel is $2\frac{1}{2}$ or 3 leagues wide, ſoundings regular, 16 to 18 fathoms; had no current, ⊙ ☾ Aore in 104° 41′ and Timon 104° 16′ Eaſt longitude.

"Left Timon the 1ſt April, and made *Poolo Condore* the 10th, having light northerly winds, and little or no current. Paſſed the eaſt ſide of Condore, with a ſteady ſoutherly wind; three obſervations made that iſland in 106° 20′ longitude Eaſt.

"On the 12th April made the coaſt of *Tſiompa*, keeping in 17, 18, and 19 fathoms. Found *Tiger Iſland* in 10° 45′ north latitude, and 107° 47′ eaſt longitude; *Buffalo Iſland* in 10° 40′ latitude. From the latter iſland to *Poolo Cecir da terra*, had regular ſoundings, and generally ſtood from 13 to 15 fathoms, $2\frac{1}{4}$ leagues off ſhore, and to 18 and 20 at 8 leagues from it. Five or 6 leagues to the ſouthward of Poolo Cecir, had no more than 10 fathoms; the ſoundings beginning there to be irregular at 4 or 5 leagues diſtance, and ſhoaling from 20 to 12 fathoms at a caſt. Cecir lies 45 miles from Tiger iſland; its latitude is in 11° 12′ North, and its longitude in 108° 32′ Eaſt.

Buffalo Iſland is round and ſmall, appearing to be 4 or 5 miles off the main.

Tiger Iſland is exceedingly bare and rocky, and ſeems only 2 or 3 miles from the coaſt, between which and the iſland lie a great many ſtraggling rocks, the land abreaſt of it being ſpeckled in a remarkable manner, with gaps of ſand, and ſpots of graſs. From Tiger to Buffalo Iſland, and farther to the ſouthward, this land is compoſed of mountains and valleys, with places toward the ſea of a ſandy appearance.

"Poolo Cecir da terra appears like a town or caſtle, when firſt ſeen, being high in the middle, with low barren rocks around it. It bears from *Cape Cecir* about S. by W. 4 or 5 leagues. This cape, and *Cape Padaran*, or *Panderan*, which lies in 108° 49′ eaſt longitude, are both high, bold lands.

"From making the coaſt thus far, found a current to the N. E. but after rounding Cape Padaran, had a ſmall ſet to the S. E. Here the winds became variable, and when ſteady, a freſh gale from the N. E. till abreaſt of the True *Cape Avarella*. This was found to lie in 12° 55′ latitude North, and in 109° 18′ eaſt longitude. The True and Falſe capes are both high.

"On the 20th April, off the True cape, a freſh ſoutherly wind ſprung up, which continued till the 25th, when we made the *Ladrone*."

INSTRUCTIONS

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# INTRUCTIONS FOR SAILING FROM ST. JOHN'S ISLAND TO EMOUY OR AMOY, WITH THE DESCRIPTION OF THE COAST, &c.

By Monſ. D'APRÈS.

WHEN you are in 30 fathoms to the ſouth-eaſtward, and within ſight of Sanciam and St. John's Iſlands, ſteer E. N. E. to get to the ſouthward of the Great Ladrone iſland: in this track you will paſs the Lema iſlands, which are not far to the eaſtward; and having paſſed them, continue the ſame courſe to get ſight of PEDRA BRANCA, or the White Stone. It lies about 21 leagues eaſtward of the Lema iſlands, and is ſafe all round, ſo that you may paſs it by day or night without danger either within or without, as it ſuits you.—The ſoundings to the ſouthward are 25 and 30 fathoms, and to the northward, in the middle of the channel, 20 and 15 fathoms.

About 4 leagues North of Pedra Branca lies a point, to the northward of which lies *Harling's* (or *Haerlem's*) *Bay*, where is good anchorage: to enter it you muſt go without the iſland near the continent. There are alſo two rocks at going in, which you may paſs on either ſide. The ſoundings are good all over the bay, where you may anchor in 10, 8, or 6 fathoms.

Oppoſite that bay, or as ſoon as you have entered it, you may ſee to the Weſt ſoutherly, 2½ or 3 leagues diſtance, ſeveral iſlots near the ſhore, which are not perfectly known; alſo to the eaſtward is a bay or cove, extending to northward, and frequented by the ſmall Chineſe junks.

*Bear*, or *Beyas Bay*, which the Chineſe call *Ti-ol-zo*, lies N. N. W. of Pedra Branca, diſtant 10 leagues; it is full of rocks and iſlots, but there is no anchorage, unleſs it be under the weſt point of the bay, which affords ſhelter from the S. W. winds.

Eaſt North-eaſt of Beyas lies *Brandon's Bay*, in which you have good ſoundings from 4 to 7 fathoms. In coming from the S. S. E. or Eaſt, if you would enter this bay by the eaſt point (where freſh water is to be had) you muſt ſail cloſe to it, and ſteer North, in ſoundings from 10 to 6 fathoms, greaſy ground like ooze: you have but 4 fathoms, in paſſing by 2 iſlots, bearing W. by S. of the ſaid point, and ſome other ſmall iſlands near the ſhore. I would adviſe you not to go between the two iſlots, becauſe there is foul ground; but to keep on the north ſide of the bay, where you have ſhelter from all winds.

To the eaſtward of the eaſt point of Brandon's Bay, lies the *Bay of Cranmeis*, or *Cranmer*, in which are good roads, with 8 or 10 fathoms, and ſhelter from the northerly winds.

*Piſſoang*, or *Share Bay*, called likewiſe the *Great Bay*, lies to the Eaſt of the latter; its entrance is narrow, but of eaſy acceſs; and within it affords ſhelter from the ſoutherly winds, in 6 or 7 fathoms, good ground.

From Cranmeis Bay to the great bay, you may ſail between the three iſlands which lie before the bay, that is to ſay, by leaving two iſlots, to the ſtarboard, and another larger one on the larboard: you may alſo paſs ſafely between two other iſlots that lie before Cranmeis bay, and the eaſtern point of the ſaid bay. If you would go without the iſland in

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in the channel, between this point and Piſſoang, you muſt ſteer E. by N. and Eaſt 4 miles; then North, till you are oppoſite Piſſoang, which is 4 miles farther; but thoſe who paſs within the iſland, muſt take care of the rocks which border the coaſt.

About 2 leagues from Piſſoang, or the great bay, lies *Groeningen Bay*, in which is a good ſhelter from the N. E. Monſoon, provided you are within the iſland that lies in the offing, near the eaſt point of the bay: you muſt not come too near the eaſt point, by reaſon of a reef projecting a good way out.

Having ſailed 14 miles E. N. E. from Groeningen Bay, you come to *Reyorſon* or *Reyenſen Bay*, where you are ſheltered from the northerly winds in 9, 8, 7, 6 and 5 fathoms, good ground. Going in you paſs cloſe to the iſland at the eaſt point; minding your lead on account of the foul ground which ſurrounds it. There are ſeveral iſlands between Groeningen Bay and that of Reyorſon, between which it is ſaid the channel is navigable in good ſoundings, from 10 to 4 fathoms.

It is reckoned about 12 leagues E. N. E. from Reyorſon's Bay to a point of land, with very remarkable ſand-downs; the depth between them is from 8 to 12, 14 and 15 fathoms. To the ſouth-weſtward of this point is a rock above water, and about a gun-ſhot from it ſeveral others which may be ſeen at half-tide.

*Naſſouwire* or *Naſſouwen Bay*, lies between that of Reyorſon and the ſand-downs; as well as a little hill called the *Black Mount*.

It is nearly 5 leagues N. E. from the ſand-downs to the ſouth-weſt point of *Wiringer Bay*. Theſe two points afford ſhelter from the northerly winds, in a ſandy bay, in 10 or 12 fathoms: you may alſo anchor under ſhelter from the S. S. W. winds, behind an iſland; but as it is encompaſſed with foul ground, you are not to come nearer than 9 fathoms: a little to the northward of this is *Teſoe* or the *Dry Bay*, under the north-eaſt point of which you have good anchorage.

From Wiringer Bay to *Cape Phijo*, or the *Cape of Good Hope*, the courſe is N. E. and N. E. by E. 6 ½ or 7 leagues. This cape is very high, and ſurrounded with low land. On the weſt ſide you perceive a great wide bay called *Orneſis* or *Orange Bay*, where you may anchor ſheltered from the northerly winds, in 6 or 7 fathoms; alſo to the northward of the Cape of Good Hope is another ſhelter from the ſoutherly winds, affording a good road, in 5 or 6 fathoms, between two iſlets about 2 miles aſunder, but ſurrounded with dangers.

As ſoon as you have the Cape of Good Hope bearing N. W. 4 or 5 leagues, the beſt courſe for going to *Amoy* (*Emouy* of the French) will be to ſteer E. ¼ N. in order to paſs without a little cluſter of iſlands and rocks called the *Lamock Iſlands*, bearing from the ſaid Cape E. by N. 13 leagues, and ſituated in 23° 8′ North. Theſe iſlands, which are very ſmall and low, lie about 4 leagues S. S. E. from *Lamond Iſland* near the main. It is ſaid that you may paſs between this laſt and the others: but I think it more prudent, when not obliged to do it, to keep off them: it is even proper to be ſure of being well to the eaſtward of them, before you ſtand to the North, eſpecially in the night-time, for fear



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of running on them in the dark: and when you are without theſe iſlands, ſteer N. E. by N. or a little more northerly, if you find the current ſetting to the eaſtward; this will bring you in ſight of *Chapel Iſland*, or *Pierced Iſland*, called alſo the *Hole in the Wall*; it lies in 24° 10′ North, and S. S. W. from the mouth of Amoy harbour, and is eaſily known; when it bears E. N. E. and W. S. W. you may ſee through it. When it is bearing N. by W. 4 leagues, you perceive on the continent a remarkable round hill to the N. W. by N. and are at that time in 26 fathoms water. You ſail then along Chapel iſland, keeping about 2 miles offing; and whether you leave it on the ſtarboard or larboard, you have no leſs than 14 or 15 fathoms; from hence you ſteer N. N. W. for the bay. When Chapel iſland bears S. E. by S. the depth will decreaſe to 14 or 15 fathoms, but if more, haul a little to the northward, keeping in 11 or 12, which is the beſt channel.

When you are half-way from Chapel iſland, a long iſland is ſeen called the *Great Goeve*, in the entrance of the harbour, at each end of which is a rocky mountain, and in the middle a ſandy bay. To the N. E. ſtands a pretty high rock, called *the Half-tide Rock*; and though you may paſs between the Great Goeve, and this rock, it is much ſafer to leave both on the larboard; you have 16 fathoms $\frac{1}{4}$ league off it. From hence you ſee the channel open between the *Little Goeve* and 5 iſlands, which lie to the north-eaſtward, and muſt keep mid-channel in ſoundings from 15 to 14 fathoms; the width between the Little Goeve and the north-eaſt iſlot, which forms the paſſage, is about $\frac{1}{2}$ league.

As ſoon as you are through this channel, ſteer N. W. by N. for the ſouth-weſt coaſt of *Amoy Iſland*, along which you ſail, within $\frac{1}{2}$ mile by your ſoundings, which are very regular. The harbour lies to the north-weſtward, and is eaſily found by the junks, or ſmall Chineſe veſſels which lie there: you may anchor therefore according to the ſize of your ſhip. The Chineſe pilots generally come on board, even without the bay, as ſoon as they perceive any ſhips.

*N. B.* You muſt not enter the port before you have obtained permiſſion of the Mandarins; eſpecially of the Hoppo who comes to meaſure the ſhip and ſettle the cuſtoms, which muſt be paid according to her dimenſions. The trade of Amoy is not eaſily carried on, by reaſon of the difficulty they have to find ſecurity for the money which you muſt advance to the merchants. Therefore it behoves ſtrangers to take care of not being made their dupes by too much confidence in the Chineſe.

INSTRUCTIONS

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# INSTRUCTIONS FOR SAILING FROM THE GREAT LADRONE ISLANDS TO POOLO CONDORE, THOUGH THE INNER PASSAGE BETWEEN THE PARACEL, AND THE COAST OF COCHINCHINA.

By Captain HAYTER.

" THE beſt time of ſailing from the Coaſt of China, according to all navigators, is in the laſt quarter of the Moon, which is not ſo ſubject to the gales of wind that blow on this coaſt, and in the gulf from the latter end of July to February.

" Sailing from Macao, or from the Typa, you will ſteer South, until you get the length of the iſland of *Monte de Trigo*, which is ſituated near that of *Chinicko* on the Coaſt of Hainan, from which going 12 or 13 leagues to the ſouthward, you will ſteer S. W. by S. the latches to the S. S. W.

" When you have ſteered thus, 80 or 90 leagues, with a northerly wind, without having latched to the S. W. the courſe clears you of the head of the Paracel, which is in the latitude of 16° 30' North. But ſhould the wind be from the N. E. or E. by N. you will then ſteer S. S. W. as ſoon as you have left Monte de Trigo, 6 or 7 leagues.

" When you are got the length of the north head of the Paracel, which you leave 14 or 15 leagues off you, to the eaſtward, you will then ſteer S. W. the latches to the ſouthward, if with the northerly wind; but if from the eaſtern board, which is frequently the caſe in this northerly Monſoon, when the winds blow from the laſt quarter as far as Cape Avarella, you muſt ſteer S. by W.

" This courſe will carry you to make the land between the iſlands of *John* * *Preſto* and *Poolo Cambir*, taking particular care not to fall with the land in the night, for in this Monſoon, the weather is ſo thick and hazy, that in the day-time you make it with great difficulty, and muſt be cloſe to it before you ſee it.

" If you think yourſelf near in the night, you will haul off it S. by E. till day-light, when you are to ſteer again to make it, in order to ſhape your courſe along the coaſt which runs S. by E. Be careful not to come too near the coaſt from the iſland of John Preſto, to *Cape Avarella*; but give it a diſcretionary offing as the wind may be either from the northern or eaſtern board.

" Several ſhips having neared the coaſt too much with an eaſterly wind, have not been able to weather Cape Avarella, but were obliged to anchor to the northward of it, in danger of being loſt. You are then to direct your courſe as you have the wind 4 or 5 leagues from the land or more, if neceſſary. *Note*, There is a good channel between Poolo Cambir and the main, with good ſhelter from eaſterly winds in caſe of neceſſity.

" Cape Avarella, which lies in the latitude of 13°, is known by a high mountain over it, and a rock at the foot of the cape. To the ſouthward of Avarella, you will keep the coaſt aboard, becauſe the channel between it and the Paracel is narrow. The currents ſet to the ſouthward, towards the Paracel, and you may often have ſqualls from the N. W. which will throw you on the ſunken rocks off *Poolo Cecir de mar*: therefore you muſt

* *Ciampelo.* q?

not quit the land, till you are 7 or 8 leagues to the ſouthward of *Poolo Cecir da terra*, becauſe abreaſt of this place in the offing, there is a ſhoal, called by the Dutch *Holland's Garden*, on which an Engliſh ſhip loſt her rudder: ſo that from Cape Avarella you will keep the coaſt aboard as before mentioned, being then clear of any other danger, but what is above water.

" The currents before mentioned, which run in theſe parts, are to make you cautious of keeping on board to Poolo Cecir da terra; the nearer which you will find ſhoaler ſoundings, and the channel narrower, but in the offing you will have 60 fathoms. From Cape Avarella to Poolo Cecir da terra, is about 40 leagues. Poolo Cecir is about 11° 12′ latitude North, being an iſland a league long, naked and without danger; from the middle of it riſes a peak, which has the appearance of a tower. The iſland lies as the coaſt, S. W. by W. and N. E. by E. at the ſouth point of Padaran, about a league from the main: you will have cloſe aboard of it 4 fathoms, thick ſand and red rock.

" Being in the ſoundings of Poolo Cecir da terra, ſteer as the coaſt lies, till you are 10 leagues to the S. W. of this iſland, which will be between the ſhoals: from hence ſteer S. W. in ſoundings of 18, 19, and 20 fathoms, that is 20 fathoms the off ſide, and not nearer the land than 17, becauſe of a ſhoal, called *Mathew Britto*, near which you will have 15 or 16 fathoms, and the next caſt aground. It is 5 or 6 miles from the coaſt, and begins abreaſt of *Tiger Iſland*, extending about 3 leagues.

" The currents ſet S. S. E. and S. E. with violence, ſo that your beſt way is not to croſs over till you are clear of the ſhoals before mentioned, keeping ſoundings of 19 or 22 fathoms, gray ſand and ſhells. Avoid, above all things. Poolo Cecir do mar; and in caſe the current ſhould ſet you into 26 fathoms, ſteer more weſterly till you get into the above ſoundings; after which, ſteer S. S. W. and this courſe and ſoundings will bring you to paſs about 4 or 5 leagues to the eaſtward of Poolo Condore, where you will have 20 and 21 fathoms, fine ſand."

## DIRECTIONS FOR SAILING BACK FROM CHINA TO INDIA OR EUROPE, THROUGH THE STRAITS OF BANCA AND SUNDA.

By M. D'APRES.

THE departure of ſhips from the coaſt of China ſhould be between the middle of November and the middle of February; for although your buſineſs would permit you to ſail at the beginning of the eaſtern Monſoon, the winds are ſtill ſo changeable, that you had better wait till they are a little ſettled.

From *Macao* you ſteer a courſe to go between the Little iſland *Potoe* or *Middle Iſland*, and thoſe on the weſt ſide; and obſerve to keep rather nearer the latter, on account of the dangers which ſurround the former: having paſſed it, you may ſteer S. $\frac{3}{4}$ E. to get ſoundings on the Macclesfield ſhoal.

Navigators have taken great care to aſcertain their reckonings by this means, going to China, but have neglected to do it coming back: if you conſider the importance of the object,

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object, they are certainly in the wrong; for in the firſt caſe, an error can only occaſion a ſmall delay; in the other, they muſt ſail through many dangers, of which no viſible warning is given, and where a very ſmall error may cauſe the loſs of a ſhip. The precaution is therefore abſolutely neceſſary when you are homeward bound.

" The courſe, in order to ſtrike ſoundings on the MACCLESFIELD," ſays Mr. *Robertſon*, " ought to be regulated according to the winds and weather.—In ſailing out of Macao Road with a ſtrong gale hanging far to the eaſtward, it will require a S. S. E. courſe; if it overblows, this will cauſe a high diſagreeable chopping ſea; then a ſtill more eaſterly courſe will be neceſſary. But in general, with pleaſant weather and the wind at N. E. a S. by E. $\frac{1}{2}$ E. courſe will keep the ſhip in the true direction: if it ſhould however be found, by time-keeper, or other means, that this courſe leads beyond 1 degree or 1° 5′ Eaſt of the Ladrone, it will then be neceſſary to bear up more to the South; as by exceeding that longitude from the Ladrone, hitting it would be uncertain."

Having ſtruck ground on the Macclesfield, ſteer to the S. W. 1° or 2° W. till in the parallel of latitude 12° 30′ north; then S. W. to get ſight of *Poolo Sapata*. In ſteering, if in this latitude you ſee it not, you muſt make ſure of *Poolo Condore*, the better to ſhape a courſe from hence to *Poolo Timon*.

In the inſtructions to go to China, I have mentioned *Andrada rock* and *Middelburg ſhoal*; they deſerve an equal attention at your return.

The bearing of Poolo Condore from Poolo Timon is N. 20° E.* it will not be difficult therefore to ſhape a courſe from the former to the latter, according to its diſtance and bearing from you. As for the direction and ſtrength of the currents in this ſeaſon, the rules are not more certain than during the weſtern Monſoon. Several ſhips have been driven toward the Natunas, others toward the Malay coaſt; the ſigns of being near the former are mud ſoundings and a greater depth than toward the oppoſite coaſt. When you think yourſelf near the latitude of theſe iſlands, if you have 45 or 50 fathoms, bear to the weſtward, in order to gain the coaſt of Malay, the decreaſe of whoſe depth is a ſurer indication of your approach to it, than the quality of the ſoundings.

I am going to mention here, continues M. *D'Après*, what Mr. *Alexander Dalrymple* has obligingly communicated to me concerning the paſſage from POOLO CONDORE, or its offing, to POOLO TIMON; the remarks of that able navigator and his knowledge of thoſe ſeas cannot be but uſefully peruſed by all thoſe who frequent them.

" When being in 7° latitude North, you have ſoft ground, under 40 fathoms, you are certain of being in the good track: had you leſs than 30 fathoms, you would be to the weſtward of the meridian of Poolo Timon, conſequently you ought to bear to the eaſtward being between 6° 40′ and 5° 40′ North. On the contrary, if you had ſand, and the depth ſhould prove from 40 to 30 fathoms, you would be on the eaſtern bank, and then you ought to gain toward the Weſt. Being more to the ſouthward than 5° 40′ you have a greater depth, as from 40 to 50 fathoms; even in the places where the ground is mixed with ſand, unleſs

* Or N. 26° according to others.

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unleſs you ſhould be to the eaſtward of the Natunas, you will find from 35 to 34 fathoms water.

" Thirty fathoms, ooze, is a very good depth to keep in; for 25 miles North of Poolo Timon, you will have 28 and 29 fathoms, and even leſs as you approach it; ſo that it becomes a ſure guide; though perhaps it would be better, coming near Poolo Timon, to keep in 35 fathoms, as there are from 40 to 45 in the channel between this iſland and the Anambas: therefore you will be certain of being toward the Malay coaſt, if you keep in 35 fathoms, and cannot fail of ſeeing Poolo Timon, as well as of paſſing without danger.

" I am very far from thinking that in the N. E. Monſoon there is a current which ſets toward theſe iſlands; it ſeems, on the contrary, that there is an oppoſite current. Of this I had a very ſenſible proof at the end of December 1761, when at ſun-ſet, finding myſelf in 30 fathoms water, having ſailed 8 leagues to the weſtward, I found in the morning, by the ſight of Poolo Timon, that I had been at the ſame time driven 24 miles to the ſouthward, which could proceed only from a ſwift current running to the S. E."

Captain *Boſwald*, of the ſhip *Ganges*, coming from Manilla in 1759, one hour before he had ſight of the northernmoſt of the Natunas, of which he reckons the ſituation in 4° 48′ latitude North, being himſelf in about 5° 15′, had no ground at 50 fathoms; ſo that it appears that the ſand bank does not join to the Natunas iſlands.

The height of Poolo Timon makes it eaſily ſeen at a great diſtance, unleſs obſcured by cloudy weather, as ſometimes happens at this ſeaſon. Having deſcried it, you ſhape your courſe, according to your diſtance from it, to paſs 5 or 6 leagues to the eaſtward of *Poolo Aore*, or nearer, if you think proper; but be on your guard, eſpecially in the night, againſt the tides ſetting in between theſe iſlands.

Ships bound to India muſt take their courſe toward the Straits of Malacca; but thoſe bound to Batavia, or directly to Europe, may obſerve what follows.

In ſailing from 5 or 6 leagues to the eaſtward of Poolo Aore, ſteer S. S. E. 20 leagues, then S. by E. ſo as to go clear of the banks ſaid to be in latitude 25′ or 30′ North, N. E. by N. of *Poolo Lingin:* when they are doubled you may ſteer S. by W. as far as the Equinoctial Line, and continue this courſe ſo as to paſs, according to computation, 12 or 13 leagues to the eaſtward of Poolo Lingin. You keep this track, not on account of the dangers which ſurround the eaſt part of this iſland, as there are none at a diſtance from it that render its acceſs dangerous, but to prevent the effect of a current, which at this ſeaſon ſets to the ſouth-weſtward; ſo that if you were to make a direct courſe from Poolo Aore, to range along Poolo Lingin at a diſtance only of 3 or 4 leagues, you ſhould run a riſque of falling, in the night or thick weather, upon the *Dominis*, or the eaſt point of Poolo Lingin. I have obſerved, from the compariſon of ſeveral tracks of ſhips in this paſſage, that the greateſt difference, to the weſtward, did not exceed 8 or 9 leagues, at fartheſt, ſo that in following what I recommend, I am pretty ſure you will always paſs 3 or 4 leagues wide of Poolo Lingin.

From this iſland you ſail toward *Poolo Taya*, according as you find the currents: but if you

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you ſhould happen to fall ſo far to the eaſtward of Poolo Lingin, as to prevent your ſeeing it, you muſt then ſteer S. W. to get ſight of Poolo Taya, and paſs between it and the *Seven Iſlands*, keeping them at 3 or 4 leagues diſtance. From hence S. by W. will lead you to *Batacarang Point* which bounds on the weſt ſide, the north entrance of the STRAITS OF BANCA.

The bearings of *Monopin Hill*, which may be ſeen a great way off in clear weather, will better direct you how to enter the Banca Straits; you muſt be very careful not to approach the Iſle of Banca, but keep along the Batacarang ſhoals, in 8 or 9 fathoms, till you have paſſed the rock *Friderick-Hendrick*, the more the depth increaſes, the nearer you are to it.

In ſailing from the Seven Iſlands to Batacarang Point, when you are 4 or 5 leagues from the entrance of the Straits: if the night or thick weather prevent your ſeeing Monopin Hill, it will be neceſſary to anchor, waiting for clear weather, or the return of the day, to enter: otherwiſe you may fall foul of Friderick-Hendrick, or Batacarang ſhoals. The north and north-eaſt parts of Banca are not well known, and have a greater number of iſlands than are laid down in the charts; on this ſubject follows a remark from the *Engliſh Pilot*.

Captain *John Harle*, of the *Macclesfield*, coming late from China, the Sun being in his zenith*, was deceived by the currents ſetting to the S. E. he took *Poolo Totty* for Poolo Taya, and fell in with the Coaſt of Banca, where he found very good ſoundings in 18 or 20 fathoms, at a reaſonable diſtance off ſhore, with ſome ſmall iſlands on the coaſt, but ſo near that none would covet to go between them. He went between the iſlands that lie off, and the ſouth (eaſt) point of Banca, in mid-channel, 18 fathoms; but he believes they might have gone much nearer the ſhore, and recommends it as a very good paſſage.

Although no accident happened to this ſhip, the ſame ſucceſs is not always to be expected; and it is adviſable to beware of falling into the like inconveniency.

Having paſſed Friderick-Hendrick you are to follow the directions already given, for ſailing to the Straits of Sunda.

## INSTRUCTIONS FOR SHIPS BOUND TO MANILLA.

FROM *Poolo Sapata* you ſhape your courſe about N. E. as high as 12° 30′ without making a greater eaſting, on account of the dangers you meet with in the paſſage from Poolo Sapata, and which have been ſeen by ſeveral ſhips, either in going or coming back.

The King's ſhip *South Sea Caſtle*, in her paſſage from Poolo Sapata to Manilla in 1762, ſaw two low ſandy iſlands lying N. E. and S. W. the diſtance between them 2 or 3 leagues: the northernmoſt bore N. N. W. and had a high tree on it, the ſouthernmoſt N. W. by W

* You cannot then depend on the latitude obſerved with the inſtruments commonly uſed at ſea.

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diſtant 7 or 8 miles. Latitude in, by account at that time, 11° 30′ North, and longitude made from Poolo Sapata 4° Eaſt. Poolo Sapata, by eſtimation, S. 63° W. diſtance 97 leagues; ſounded, no ground.

In the ſame year a country ſhip named *the Sabut Jung*, going from Bengal to Manilla, remarks that between Poolo Sapata and the iſland Cabra lies a low iſland, almoſt in the fair way, which muſt be avoided by ſailing to the northward of it. "Few or none," ſays the journal, "lay it down in its true latitude, which is 11° 28′ North, Meridian diſtance from Poolo Sapata 5° 12′ Eaſt." It is ſo low that we did not ſee it till within 3 miles of it, in clear weather. To the weſtward it appears clear, but to the eaſtward is a low ſandy bank; and about 7 leagues Eaſt of the iſland, is a ſhoal on which we had only 8 fathoms water.

When you are come into the latitude of 12° 30′ you may ſteer directly for the Iſland Cabra, its Meridian diſtance from Poolo Sapata is exactly 11° 45′ according to the reſpective longitude of both places.

The ISLAND CABRA, or *Goat Iſland*, in 13° 56′ north latitude, and 119° 55′ longitude Eaſt of London, is flat, rocky, and ſeemingly ſteep on all ſides, but lower at each end, whoſe ſlope is very gradual to the ſea-ſide: it is about 9 or 10 miles in length, near as much in breadth, being almoſt round, and may be ſeen from a ſhip's deck 6 or 7 leagues. When it bears S. E. by E. it is then on with the iſland LUBAN, which being very high and mountainous, can be ſeen 17 or 18 leagues off. Navigators commonly begin and end their reckoning at Goat iſland.

Being 3 leagues to the northward of Goat iſland, you will ſteer N. by E. toward the CORREGIDOR, or *Mirabella*, and *Marivelles Iſland*, a pretty high and large iſland near the entrance of Manilla Bay, but rather neareſt the north ſhore: it bears from Goat iſland N. E. ¼ E. diſtance 15 leagues; there is a plenty of good freſh water near the weſt part of this iſland, under a very high, ſteep cliff, about ¼ of a mile from the pierced rock; but it is bad landing on a ſtony beach, though the water is always ſmooth.

In ſailing from Goat iſland to the Corregidor, you will ſee FORTUNE ISLAND, which is ſmall, but high and rocky; it bears from the Corregidor S. by W. ¼ W. 5 or 6 leagues. You leave it on the ſtarboard ſide, and paſſing it about 3 leagues to the weſtward, will have no ſoundings till you come within 2 or 2¼ leagues of the Corregidor; thereabout you find from 40 to 50 fathoms, ſandy ground. Keeping on toward the Corregidor, you ſhoalen your water gradually to 40, 35, 30 fathoms, and to 26 or 27, two miles to the weſtward of it.

As you near the Corregidor, you perceive to the E. by S. of its ſouth-weſt point *Poolo Cavallo*, a rock like a ſail, which lies about half-way between it and the ſouth ſhore, and bears from the Corregidor S. E. by S. about 2 miles; it is ſteep on all ſides. You have 20 fathoms within ¼ mile of this rock, and from 20 to 24 between it and the iſland. Between the rock and the ſouth ſhore, there are from 20 to 17 fathoms within ¼ mile of the ſhore, all clear, ſandy ground, and no danger but what you ſee.

There is another rock called by the Spaniards *la Monja*, or the *Nun*, and by the Engliſh the

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the *Hay-cock* from its appearance; this bears from the Corregidor W. ¼ S. about 2½ miles and is pretty high, and ſteep-to on all ſides, having 27 fathoms within ¼ mile all round it. Between the Hay-cock and the north coaſt you find regular ſoundings from 27 to 28 and 20 fathoms, ¼ mile from the ſhore, fine, clear ſandy ground: between it and the Corregidor from 27 to 22, 29 and 30; and the nearer the north-weſt part of the Corregidor, the deeper the water.

At a very ſmall diſtance off the north-weſt or weſt part of the Corregidor, there is a rock with a hole in it which you may ſee through: within a cable's length of it the depth is 30 fathoms. A-breaſt of the Corregidor, mid-channel between it and the north ſhore, you have 26 fathoms; and the nearer the Corregidor, the deeper the water; increaſing from 26 to 36, 48 and 52 fathoms, within ¼ mile of the iſland. On the other hand it ſhoals quickly from 26 fathoms mid-channel, to 16, 15, within ¼ mile of the north ſhore, hard, ſtony ground.

Being in 45 or 50 fathoms, about 2 leagues to the weſtward of the Corregidor, ſteer directly for that iſland; and if you have a fair wind, the common paſſage is between the Hay-cock and the Corregidor, and ſo between it and the north ſhore, keeping the Corregidor on the ſtarboard hand.

From the Corregidor to MANILLA the courſe is, E. N. E. ¼ N. diſtance 11 leagues; and to CAVITE', E. by N. ¼ N. 8 or 9 leagues. In this paſſage you muſt be very careful of a very dangerous ſhoal that lies in the fair way; it is called ST. NICHOLAS'S SHOAL, having but 11 feet in the ſhoaleſt part, within a ſhip's length of which, to the N. W. you find 13 or 15 fathoms: and it is ſo ſteep-to, that you have no notice whatever of the danger. As you ſteer from the Corregidor for Manilla or Cavité, keep the north or north-weſt part of that iſland W. S. W. till you bring the ſteeple of Cavité church to bear Eaſt, and a remarkable hummock, cloſe to the ſea, (on a point of land on the north ſhore) to bear W. N. W. ½ N. you are then clear of St. Nicholas's ſhoal, and may ſteer for Cavité or Manilla at your pleaſure. Between the ſhoal and the north ſhore, you have in the fair way 17 and 18 fathoms, which decreaſe gradually to 5 and 4 toward that ſhore: and as you are ſteering to the eaſtward, you will likewiſe ſhoalen your water regularly from 17 to 14, 12, 10, 8, 6, and 5 fathoms, in which depth you may in ſafety anchor off Cavité, a large mile from the ſhore, the bottom muddy, and good holding ground.

If you are to the weſtward of the Corregidor with the wind eaſterly, or E. N. E. which is right out of Manilla Bay, it is beſt to go through the ſouth channel between the Corregidor and the ſouth ſhore; there being more room for a ſhip to turn to windward, no danger, but what may be ſeen, and the ſouth ſhore being bold and clear. The nearer the Corregidor, the deeper the water on all ſides, as we have already obſerved; but you muſt carefully attend to the following remarks.

1ſt. When you are come abreaſt of the eaſternmoſt high land, on the ſouth ſhore, which bears from the Corregidor S. E. ¼ E. you muſt be cautious how you ſtand toward that ſhore; for the tail of St. Nicholas's ſhoal trenches away gradually toward the ſaid high land, and you will ſometimes ſhoalen your water ſuddenly from 12 to 6 or 7 fathoms, hard,



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rocky ground. Therefore it is adviſable to keep in no leſs than 12 or 13 fathoms; and as you get farther to the eaſtward, not to ſtand in leſs than 15 or 16; for you may have 15 fathoms at one caſt, 7 or 6½ the next, and then 4 fathoms on the very edge of St. Nicholas's ſhoal.

2°. To weather away the eaſt part of the Corregidor, as ſoon as you can, you will have 22 or 23 fathoms within ½ mile of it. When you can do it, ſtand over for the north ſhore, and keep working up along that ſhore; it is bold to, having in moſt places 15 or 16 fathoms ½ mile off ſhore, and 10 or 12 at a cable's length off the ſame; though in ſome places, it ſhoalens very ſuddenly from 15 to 10, 7 and 5 fathoms, there is no danger but what is viſible.

After you are paſt the Corregidor, the north ſhore has a clear, ſandy bottom, and good anchorage. As you proceed farther to the eaſtward and northward, you will find that north ſhore flatter, and the ſoundings more gradual, being ½ mile off ſhore, 17 or 18 fathoms, ½ mile off 12 fathoms, which decreaſe regularly to 10, 8, 6, 5, 4, and 3 fathoms cloſe inſhore. As you ſtand to the ſouthward, you avoid St. Nicholas's Shoal, by conforming yourſelf to the leading marks above given for that purpoſe.

In Manilla bay there is a tide not very regular, which ebbs and flows 3 feet perpendicular; about the Corregidor it ſets ſtrongly to the weſtward for 24 hours together, eſpecially with the wind eaſterly; then ceaſes during 4, 5, or 6 hours, after which it runs ſtrong to the weſtward again. Between the Corregidor and the north ſhore, the tides flow 18 hours together to the weſtward, pretty ſtrong, and then turn to run with the ſame ſtrength to the eaſtward, for 6 hours, in which time the water has flowed to its full height. The tide ſets to the weſtward 18 hours out of the 24; ſometimes the flood, and one ebb; and it flows as much in 6 hours, as it ebbs in 18; but the time of high water is not aſcertained.

CAVITE' is properly the ſea-port of Manilla, though it is a town and garriſon itſelf. It is ſituated on a low point of land which forms a cove and good harbour; though it is ſhallow in ſome places, there are 6 or 7 fathoms in the deepeſt part of it, the bottom ſoft mud: great ſhips may lie well ſheltered from the S. W. and Weſt winds. The Spaniards have there a very good marine yard, well ſtored with all kinds of naval ſtores; build their galleons and other ſhips, and have excellent conveniences for heaving ſhips down, at which they are very dexterous. It is fortified on the land and ſea ſides.

You find no good water in Cavité, though there are many wells, plentifully ſupplied, but the water is all brackiſh; the inhabitants are obliged to fetch their water from old Cavité.

MANILLA lies from Cavité N. N. E. 3° E. about 3 leagues, and no danger between them; the ſoundings are regular, from 5 fathoms at Cavité, to 6, 7, 8, and 9, half way to Manilla, and they decreaſe gradually to 8, 7, 6, 5, and 4½ or 4 fathoms, off Manilla. If you have occaſion to turn between both places, you may ſtand inſhore any where to 5 or 4½ fathoms, the ſhores being very flat, with a gradual ſhoaling every where, all clear ground, muddy bottom, and no danger.

You lie in a good birth in *Manilla Road* with the following bearings, *viz.* the fiſhing ſtakes,

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ſtakes, at the river's mouth N. 18° E. The north Baſtion N. 37° ½ E. The Cupola E. 37° N. The ſouth-weſt Baſtion E. 20° N. in 5 fathoms water, 1 mile from Manilla. All the Spaniſh ſhips generally anchor in Cavité harbour.

The city of MANILLA, capital of the Philippine iſlands, and the ſeat of the Spaniſh government, lies in 14° 39′ latitude North, and in 120° 56′ longitude Eaſt from London, by the aſtronomical obſervations of Mr. *Le Gentil*. The variation was 36′ Weſt, in 1763.

The air at Manilla is very unwholeſome, during the months of June, July, and Auguſt, being very ſultry, and ſubject to noxious fogs produced by the exhalations from the ſwampy lands round the city. Then fevers and fluxes are very rife: and the muſketoes alſo become very troubleſome in theſe months.

Wood is a very ſcarce article both here and at Cavité, and muſt be brought from the inland parts of the country. The river at Manilla is very good water; if your ſhip lies in the road, the watering is very expedite; you go up the river to the bridge, and fill your caſks in the boat.

## DIRECTIONS FOR SAILING FROM MANILLA TO THE STRAITS OF SINCAPORE AND MALACCA.

By Monſ. D'APRÈS.

THIS paſſage being made in the N. E. Monſoon, you find the winds always favourable to your courſe; therefore, in leaving the Bay of Manilla, you ſteer for the *iſland Cabra*, or *Goat iſland*, ſo as to paſs 3 leagues to the northward of it. The courſe is S. W. ½ W. diſtance 15 leagues.

You take your departure from Goat iſland, ſteering W. by S. to get into the 12th parallel of latitude, and 9° meridian diſtance from Goat iſland. With this courſe, you paſs to the northward of all the dangers mentioned in the preceding article.

When you are come into 12° of latitude, with the above meridian diſtance, your courſe muſt be to the S. W. to get ſight of *Poolo Sapata*.

As the currents during this Monſoon run often to the weſtward, you muſt attend carefully to their ſet, leſt you ſhould meet with the ſouth iſlands of the Paracel, or unexpectedly, in that S. W. courſe, with *Poolo Cecir do mar*, or the *Scorpion's tail*.

If the weather, which at this ſeaſon, is very often hazy, ſhould not permit to ſee Poolo Sapata, you are to ſteer ſo as to come into the ſoundings of 40 and 45 fathoms, fine gray ſand, which are found in 9° 15′ latitude, between Poolo Sapata and *Poolo Condore*, and thence ſteer W. S. W. to ſee Poolo Condore: the depth decreaſes as you approach this iſland, ſo that you find but about 20 fathoms, when in ſight of it to the eaſtward. After all, if you cannot ſee the iſland, you will follow the directions before given from Poolo Condore to Poolo Timon, coming back from China.



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# ENUMERATION OF THE SHOALS, &c. IN THE CHINA SEAS.

## By ALEXANDER DALRYMPLE, Esq.

| Latitude North. ° ′ | Longitude from Greenwich. ° ′ | | Authorities. |
|---|---|---|---|
| 20.54<br>20.39 | 116.50<br>116.35 | PRATAS, according to Mr. *Bayley* ..... | *Resolution & Discovery*, 1779. |
| 20.58<br>20.45 | 117. 0<br>116.44 | Do. . according to Captain *King*. ..... | |
| 20.52<br>20.28 | . . . | Do. . according to Captain *Grubb*. ..... | *Long-boat*, 1761. |
| 19.33 | 113. 1 | ST. ESPRIT BANK, nearly round, 18 or 20 leagues in circuit, on north part rocks even with the water's edge, on south part 9, 10, 15 fathoms, sand, rocks and gravel. ..... | Ship *Afforiede*, 1755. |
| 19. 9 | . . . | Suppoſed part of ſame, 8 fathoms, red coral rocks. ..... | *La Paix*, 1763. |
| 19. 7 | 112.37 | Do. 12, 10½, 6½, 8, 9, 12, (none at 20 and 40), ſand, with ſmall ſtones and coral rock; ſteered on it N. N. W. ½ mile, and N. ½ W. 1½ mile; appearance of ſhoal water to weſtward. ..... | *Groſvenor*, 1765. |
| 17. 4 | . . . | BREAKERS AND SOME ROCKS above water, extending N. E. and S. W. 3 or 4 leagues, ſuppoſed north-eaſt ſhoal of *Amphitrite*, or *Triangles*. ..... | *E. Sandwich*, 1784. |
| 16.35 | 112.52 | LOW BLACK ISLAND, with white ſand, round and long bank of white ſand to North, and Breakers. ..... | *E. Lincoln*, 1764. |
| | | High black rock from maſt-head Weſt 8 or 9 miles when the above iſland bore N. W. ½ N. 8 or 9 miles diſtant. | |
| 16.30 | . . . | PYRAMID ROCK, to the northward of it a low ſandy iſland, and another to the N. E. ..... | *Empreſs Elizabeth*, 1720. |
| 16.14 | 112.56 | Soundings 13 fathoms, rocky. ..... | *E. Lincoln*, 1764. |
| 15. 6 | . . . | SCARBOROUGH SHOAL. ..... | *Scarborough*, 1748. |
| 15. . | . . . | Do. ..... | *Afforiede*, 1755. |
| 15.11<br>15. 5 | 117.41 | Do. S. by E. and N. by W. about 12 miles long and 4 broad, Breakers, 2 ſmall rocks juſt on ſurface about middle of the ſhoal. ..... | *Royal Captain*, 1773. |
| 11.48 | 112.31 | SHOAL OF SAND, N. E. and S. W., 45 fathoms at 2 leagues diſtance. ..... | *South Sea Caſtle*, 1762. |
| 11.40<br>11.34 | 112.16<br>112.11 | Do. by *Nicholſon's* account *Two low ſandy Iſlands*. ..... | *South Sea Caſtle*, 1762. |
| 11.39 | . . . | Probably the ſame. ..... | *Ship Lucania*, 1764. |
| 11 36 | 113.51 | Do. TWO SHOALS, BREAKERS and DRY SAND, with one or two ſmall rocks. ..... | *Capt. Caſſar.* |
| 11.34 | 113.51 | BANK OF SOUNDINGS. ..... | *Sambut Jung*, 1763. |
| 11.32 | 113.29 | LOW ISLAND, about 1 mile extent, covered with ſhrubs and ſeawreck, at eaſt ſide a Dry ſand bank about a mile extent. Iſland N. N. W. 4 miles, no ground at 85 fathoms. ..... | *Ditto*, 1763. |
| 11.25 | 114.15 | BANK OF SOUNDINGS. ..... | *Falmouth*, 1762. |
| 11.24 | 114.12 | Do. 9 fathoms, rocky. ..... | Sieur *Goſſard*, 1741. |
| 11.20 | . . . | BREAKERS. ..... | Captain *Eaton*, 1685. |
| 11.11 | 113. 8 | ISLAND. ..... | Capt. *Nat. Bacon*, 1768 & 69. |
| 11.10 | 112.54 | BREAKERS. ..... | *Delphin*, 1767. |

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| Latitude North. ° ′ | Longitude from Greenwich ° ′ | | Authorities. |
|---|---|---|---|
| 11. 2 | 111.40 | LOW ISLAND. | *Essex*, 1762. } in Company. |
| 10.58 | 112.12 | Do. with ſand to ſouthward and Breakers 2 miles N. W. from the iſland. | *Falmouth*, 1762. } in Company. |
| 11. 1 | 115.17 | LOW BLACK ISLAND, ſurrounded with Breakers, and has a bank of white and reddiſh ſand at ſouth point, and at north a long ledge of Breakers and green water; lies N. E. and S. W. | *Cavallo Marino*, 1752. q? *Rooke*, 170$\frac{0}{1}$. |
| 10.57 | 117.55 | BANK OF SOUNDINGS, 8, 9, 10, 11, fine white ſand and coral rocks, about a mile long Eaſt and Weſt, and ¼ mile broad. | *Sea Horſe*, 1776. |
| 10.48 | 115.13 | VERY WHITE SAND above water, with a ledge of Breakers at each end ſtretching about ½ mile; it lies N. E. and S. W. about 2½ miles. | *Cavallo Marino*, 1752. q? *Rooke*, 170$\frac{0}{1}$. |
| 10.47 | 114.29 | NORTHMOST OF 2 SANDS, juſt above water. | *Royal Charlotte*, 1773. |
| 10.46 | 113.47 | LEDGE OF BREAKERS. | *Dolphin*, 1767. |
| 10.42 | 113.26 | SMALL ISLAND with 2 reefs of Breakers. | Sieur *Goſſard*, 1741. |
| 10.41 } 10.39 } | 112.47 | LEDGE OF BREAKERS. | *Dolphin*, 1767. |
| 10.35 | 112.38 | 1ſt ISLAND *by Dolphin*. | *Ditto*, 1767. |
| 10.31 | . . . | BREAKERS lying Eaſt and Weſt, 1 mile long and very narrow. | *Ganges*, 1759. |
| 10.22 | 112.31 | BREAKERS. | *Dolphin*, 1767. |
| 10.20 | . . . | SMALL LOW ISLANDS. | *Ganges*, 1759. |
| 10.18 | 115. 7 | SAND BANK with high Breakers, lies N. N. E. and S. S. W. | *Cavallo Marino*, 1752. |
| 10.16 | 110.34 | ANDRADE, ſoundings on it. | *Bridgewater*, 1771. |
| 10.17 | 112.35 | LONG ISAND. | *Dolphin*, 1767. |
| 10.10 | . . . | SAND LIKE A HANDKERCHIEF, about 1 mile long, dry and Breakers. | Capt. *Eaton*, 1685. |
| 10. 8 | 112.15 | BREAKERS. | *Dolphin*, 1767. |
| 10. 7 | 112. 9 | NORTH END OF GREAT REEF. | Do. q? *Rooke*, 170$\frac{0}{1}$. |
| 10. 5 | . . . | SAND. | C. *Eaton*, 1685. |
| 10. 2 | 111.56 | BREAKERS. | *Hardwicke*, 1744. |
| 10. 0 | . . . | SAND. | C. *Eaton*, 1685. |
| 9.59 | 111.56 | REEF. | *Dolphin*, 1767. |
| 9.54 | 112. 1 | REEF, great length, all feather white, nothing above water. | *Hardwicke*, 1744. |
| | | ROCK ANDRADE. | *Eſſex*, 1760. |
| 9.50 | 108.41 | BREAKERS, ſuppoſed *Andrade*, 25, rocky and no ground. | *Falmouth*, 1762. |
| 9.39 | 114.58 | SHOAL, 3 *Black Rocks* in the middle; at ſouth point many Breakers, and at north point green water, but ſcarce any breaking; lies N. E. and S. W. 6 miles in length. | *Cavallo Marino*, 1752. |
| 9.22 | . . . | BREAKERS, ¾ of mile extent. | *Ganges*, 1759. |
| 9.15 | . . . | BREAKERS in 3 places, a *Reef* under water, ſtretching N. N. W. and S. S. E. about ¼ a mile, 8 or 9 leagues from *Palawan* $\frac{0}{100}$ within 1 mile of *Reef*. | *Sea Horſe*, 1776. |
| 8.58 | 110.40 | SMALL REEF ½ league long, from Eaſt to Weſt, on which the ſea broke; 7 fathoms at weſt point. | Sieur *Goſſard*, 1741. |
| 8.57 | 116.54 | BREAKERS, extending W. by N. and E. by S. 6 miles long, and very narrow; eaſt end appeared to be rocky, as ſea broke very high on it; weſt point ſuppoſed ſand, on which ſea did not break ſo high, and only ſeemed to roll over it. | *Sea Horſe*, 1776. |
| 8.47 | 116.44 | BREAKERS, lying N. E. and S. W. about 10 or 11 miles long, and 3 broad, in form of half moon with the curve to the weſtward, and is all fine white ſand, juſt under ſurface of water. | *Ditto*. |

SHOAL

| Latitude North. | Longitude from Greenwich. | | Authorities. |
|---|---|---|---|
| ° ′ | ° ′ | | |
| 8.31 | 1°4.21 | SHOAL, 25, black rocks and breakers, lies N. by E. and S. by W. 9 miles long and 3 broad. | *Cavallo Marino*, 1755. |
| 8. 4 | 110.30 | BANK OF 14 FATHOMS, ſailed Weſt 4 or 5 miles on it. | *Prince Wales*, 1755. |
| 8. 0 | 115.25 | HIGH BREAKERS. | *Viper*, 1769. |
| 7.50 | 114.30 | ROCKS *and* HIGH BREAKERS. | *Walpole*, 1783. |
| 7.30 | 115. 7 | BANK *with* HIGH BREAKERS. | *Viper*, 1769. |
| 7.24 | 110.50 | BANK (ſeems to be *P. Wales Bank)* | *Viper*, 1769. |
| 6.57 | 113.41 | ROCKS *and* BREAKERS. | *Royal Charlotte.** 1773. |
| 6.55 | 116. 0 | NORTHMOST OF TWO SHOALS, 2½ fathoms, about 4 leagues aſunder, *Borneo* in ſight. | Mr. *Barton.* |
| 6.14 | 113.17 | BREAKERS, N. E. and S. W. 1½ mile long. | *Louiſa*, 1774. |
| 6. 9 | . . . | FORTY-FOUR BLACK STONES, The Breakers N. by E. 4 or 5 miles. | *Ditto.* |
| 5.54 | 114.18 | SHOAL about 4 miles long, North and South, had 6 fathoms, rock; believe ſo little as 3 fathoms; had 55 and 60, ſhells, 2 cables length. | *Cavallo Marino*, 1752. |
| 5.49 | 113. 2 | SHOAL of 4 fathoms. | C. *Kirton*? q? |
| 5.39 | 113.15 | SHOAL, 5 fathoms, rocks. | |
| 5.39 | . . . | TWO SHOALS, rocks ſeen on northmoſt. | *Euphrates.* |
| 5.37 | 113.24 | | |
| 5.37 | 113.11 | SHOAL, 3 fathoms, rocks; then 10, 17. | C. *Kirton*? q? |
| 5.35 | 112.28 | REEF *of Sand and Rocks*, with high Breakers, lying N. N. W. and S. S. E. ½ mile long, and very narrow. | *Sea Horſe*, 1776. |
| | | BANK *of 5 fathoms*, ſand and rocks. | |
| | | SHOAL, ſometimes broke N. W. and S. E. Theſe appear in 4 different parts, extending about N. W. and S. E. 7 or 8 miles in length. | *Ditto.* |
| 5.28 | 114.39 | THREE *or* 4 SHOALS near together. | *Cavallo Marino*, 1752. |
| 5.24 | 112.30 | SHOAL, 1½ fathom, hard rocks N. N. E. and S. S. W. | *Lucenia*, 1776. |
| 5. 5 | 112.24 | SHOAL *of 2 fathoms.* | *Ditto.* |
| 4.57 | 112.30 | DRY SAND, S. 37° E. from laſt ſhoal about 8 miles diſtant. | *Ditto.* |

* It is probable that the ſhoal ſeen by the *Louiſa* is the ſouthern part of this, or continuous ſhoals, and that they lie in that part of the *Cuddalore's* track, when we were carried providentially to the northward of them by a ſtrong current; otherwiſe it would make our track both in the *London* and *Cuddalore*, between the two ſhoals, which could ſcarcely have happened without ſeeing either.

## INSTRUCTIONS

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## INSRUCTIONS FOR SAILING FROM THE STRAITS OF SINCAPORE, THROUGH THE STRAITS OF BALABAK, AND THENCE TO SOOLOO.

By Captain DODWELL.

"AS ſoon as a ſhip is got out of the Straits of Sincapore, I think ſhe muſt ſhape her courſe ſo as to make POOLO DOMAR, whoſe paſſing is ſafe on either ſide. I took my departure from it the 22d of September, and coaſted along the Anambas, having 35 fathoms, fine ſand, within 2 leagues of the ſhore. I tried the current, and found it to ſet 2 knots an hour to the ſouthward; upon which (it being calm) I came to an anchor, and ſent the boat to ſound; 32 fathoms water was the leaſt ſhe met till within a mile of the ſhore, where ſhe had 15 fathoms, coral, and then decreaſed gradually to one fathom. By a good obſervation I made Poolo Domar to lie in 2° 36′ latitude North. I ſteered N. N. E. ½ E. from the Anambas, to the latitude of 5°, by which courſe, according to the draughts, I ſhould have made the Natunas; but I could ſee nothing of them, and I am thoroughly convinced that they, as well as the Anambas, are falſely laid down. By going this track, inſtead of making Poolo Timon, I ſhortened my diſtance at leaſt as much as the difference between the diameter and the ſemicircle.

"When in the latitude of 5° I think the beſt way is to ſteer N. E. to the latitude of 7°, in which parallel it is ſafeſt to make land. I made 12° 30′ meridian diſtance from Poolo Domar to BANGUEY PEAK; this peak may be ſeen at day-light, about 14 leagues off, and makes, at the firſt appearance, like a ſugar-loaf, its top inclining to the eaſtward. There is no danger in approaching it at night, provided the lead is kept going, and a good look-out. I had from 74 to 60 fathoms, about 12 leagues off; and when Banguey Peak bore S. E. about 3 leagues, I came to an anchor in 23 fathoms. When in thoſe ſoundings, by ſteering to the north-eaſtward, you ſoon get ſight of Balabak, and ſee 3 ſmall iſlands on the ſtarboard hand, which are called *Salinſingan*; to the northward of theſe runs a reefs of rocks, to the diſtance, as I compute, of 2 leagues. Advancing to the northward, you will get ſight of 2 ſmall iſlands; and as I find them without a name, I ſhall call the ſouthernmoſt the RABBIT, and the northernmoſt the CONEY. As ſoon as you deſcry the Rabbit, ſteer ſo as to give it a birth of about 2 miles on the larboard hand, have particular regard to the tides; the flood ſetting E. N. E. and the ebb W. S. W. The ſhoaleſt water is on the ſtarboard hand; which you deepen again by hauling to the north-weſtward, and when the body of the Rabbit bears W. S. W. about 3 leagues, you are then out of the *Straits of Balabak*, and may ſteer E. by S. till within ſight of *Cagayan-ſooloo*, which may be ſeen in clear weather at about 12 leagues diſtance. The ſoundings are ſo irregular in thoſe parts, that there is no depending on them, which, added to the ſhoals, makes the ſtraits dangerous. From having no ground, I ſhoaled ſeveral times into 7 fathoms ſuddenly, ſometimes 15, 20, to 30 fathoms, and in ſailing two or three ſhips lengths, got out of ſoundings again; the ground being in ſome parts rocky, in other a white ſandy bottom.

"I do

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"I do not think it would be ſafe to ſteer a more ſoutherly courſe, than E. by S. eſpecially in the night, before you get ſight of Cagayan-ſooloo; for upon my having little winds, and being afraid of the current ſetting to the northward, I hauled up E. S. E. and by day-light diſcovered two rocks above water, each of the ſize of a large ſhip, and diſtant about a league from each other, of which no mention is made in any chart.

"As ſoon as you get ſight of Cagayan-ſooloo, ſteer right for it: as you approach it, you will make ſeveral iſlands; and for the ſouthernmoſt point of the largeſt, direct your courſe: it is bluff and high, and has 20 fathoms water within a mile of the ſhore; in this depth I came to an anchor, and had ſeveral of the natives a-board, with fowls, fruits, &c. The capital town is at this end of the iſland, where their prince reſides. The lateneſs of the ſeaſon prevented my going on ſhore. After a few hours ſtay, I got under way, and ſtood to the ſouth-eaſtward, leaving two ſmall iſlands which lie to the ſouthward of the large one (and which I ſhall call PASSAGE ISLANDS) about a mile on the ſtarboard hand.

"There is no danger near Paſſage iſlands, but there runs a reef of rocks from the large iſland, to appearance very dangerous. When Paſſage iſlands are doubled, ſhape your courſe for the ſouth end of PANGUTARAN, which, by a good obſervation, I make in the latitude of 6° 12′ North. There is no ſounding in all this track, and particular care muſt be taken of the tides; the flood ſetting ſtrong during the ſprings to S. E. and almoſt a conſtant ebb ſetting to the N. W. during the neaps. The paſſage I made to SOOLOO was between the ſouth end of Pangutaran and the *Deacon Iſlands*, getting no ground with 60 fathoms line till within a league of SOOLO TOWN, where I had 30 fathoms, which decreaſed gradually inſhore."

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## INSTRUCTIONS FOR SAILING FROM THE WESTWARD TO CHINA, ROUND THE NORTH END OF BORNEO, BETWEEN THE ISLANDS OF BALABAK AND BANGUEY, TOWARD SOOLOO; AND OUT TO THE MAIN OCEAN AMONG THE PHILIPPINE ISLANDS TO THE NORTHWARD OF MINDANAO; IN THE S. W. MONSOON.

By JOHN WATSON, of the ROYAL CAPTAIN, 1762.

THE north end of BORNEO lies in 6° 31′ latitude North, by a good obſervation, and is eaſily known by a very high mountain near it called *St. Peter's Mount (Keney Balloo)*: its extreme ends with a bluff point not very high, off which are 3 low, woody iſlots. Come no nearer the ſhore, than 6 or 7 leagues, the north end bearing E. N. E. for within that diſtance you will find very irregular ſoundings, with great overfalls of hard coral rocks: from hence haul away to the northward, till the north end of Borneo bears Eaſt, or E. ½ S. you may then ſteer about N. N. E. 6 or 7 leagues, and you will make 3 or 4 iſlands, the largeſt of which has toward the north-weſt end a high peak, juſt like a ſugar-

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ſugar-loaf, whoſe top inclines to the weſtward, when you are to the North of it. This iſland is called BANGUEY.

You muſt leave all theſe iſlands on the ſtarboard hand, or to the eaſtward of you; off the two neareſt you have regular ſoundings for 4 or 5 leagues, 6 or 7 miles off ſhore, in 38 or 40 fathoms water, ſoft muddy ground; then you will fall into rocky ground again.

When Banguey bears E. by N. you may ſteer N. E. till you make 3 more low woody iſlots nearly together, keeping between 20 and 30 fathoms, all coarſe rocky ground. At the ſame time you will ſee a large iſland to the northward of you, called BALABAK, or *Balaba*, with a ſmall iſlot off its ſouth-eaſt end.

Having made theſe iſlands plain, ſteer right away for the northernmoſt of the 3 low woody iſlots, giving it a birth of about 3 miles, till it bears E. by S. or E. $\frac{1}{2}$ S. then haul cloſe round it; for as you paſs it, the body bearing from South to W. S. W. you may come within 1 mile of it, carry from 22 to 35 fathoms water, rocky black ground, and from 20 to 22, fine white ſand. You will obſerve, in paſſing the iſland, a ſpit of ſand about $\frac{1}{2}$ mile in length, which runs from the eaſternmoſt part of it, toward the S. E. I judge this iſland lies in the latitude of 7° 23′ nearly. You muſt be careful in keeping it aboard for the following reaſons, *viz.* when the body of this iſland is bearing S. W. by W. about 3 miles, you have only 5 fathoms water, coral ground; and 5 or 6 miles to the N. E. lies the head of a white bank of ſand dry at low water: only ſtretching to the eaſtward and northward, withal for 9 or 10 miles from this ſand, and quite over to Balaba, it is full of coral banks, with overfalls, from 3 or 4 to 14 or 16 fathoms.

If it ſhould happen that you are obliged to work to windward between Banguey and Balaba, you muſt take great care that the lead, or the leads (it being requiſite to heave them on both ſides) are kept conſtantly going; and as ſoon as you come into 20 or 19 fathoms on the Balaba ſide, put about immediately, as in 2 or 3 caſts you will always fall into 6 or 4 fathoms. Standing toward Banguey put about in the ſame depth, if you are pretty near the 3 low woody iſlots, for there you will not be above 3 or 4 miles without a reef of rocks extending from the ſouthern part of the iſlots almoſt over to Banguey: but if you are 3 or 4 leagues to the weſtward of theſe ſame iſlots, you may ſtand into 17 or 18 fathoms with ſafety.

You will find overfalls all the way athwart the channel; and from ſide to ſide it is all hard rocky ground of variegated coral. We experienced a ſtrong current, ſometimes ſlacking for a few hours, during which time I judge the flood-tide made, though not ſtrong enough to appear as a regular tide on the ſurface of the water.

From the 3 low woody iſlots we ran N. 81° E. diſtance 66 miles, and made the iſlands of ST. MIGUEL bearing E. by N. 4 or 5 leagues off, three of them nearly together, and one away to the ſouthward; we were then in 12 fathoms water, coral ground. Theſe iſlands are ſmall, and a bank or reef of coral rock runs out 5 or 6 leagues to the Weſt and North of them; the ſoundings beſides are very irregular on the weſt ſide of the bank, and in ſome places have breakers, which renders them very dangerous: you muſt keep here a very good look out at the maſt-head, and have recourſe to your lead; if you



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ſhould find yourſelf on the reef, you clear it by hauling to the N. N. W. 5 or 6 leagues, and may then ſteer to the eaſtward, and ſo to the ſouthward by degrees, making the lead your principal guide.

When you are clear of St. Miguel iſlands and their reef, which lie in 7° 35′ North latitude nearly, haul up to the ſouth-eaſtward till you are in the parallel of 6° 50′, making about 1° 48′ Eaſt, meridian diſtance from St. Miguel iſlands. Then you will ſee 2 ſmall iſlands very near each other: the ſouthermoſt one being a ſingle peaked hummock, and the other a roundiſh hummock lower than the former; theſe are called the HARE's EARS. At the ſame time you will likewiſe perceive a large iſle, with very high land, particularly on the eaſt part, and whoſe body is bearing E. ¼ N. or E. by N. 12 or 14 leagues, while the other bears S. E. eaſterly, about 6 leagues. Between the Hare's Ears and the high land, which is part of the Iſle Mindanao, lies the paſſage to Sooloo; for to the ſouthward or ſouth-weſtward of the Hare's Ears, as you ſtand toward them, you make ſome low land full of trees, with ſhoals and breakers, to all appearance very dangerous.

Should you not be able to fetch SOOLOO, or was you obliged, by any accident, to bear away for China, provided the S. W. Monſoon ſtill continues, there is a good paſſage between the PHILIPPINE Iſlands; but to ſtrangers the eaſternmoſt part of it will appear ſomewhat dangerous within ſo many iſlands, among which the tides have an exceſſive rapidity. We were forced through it by the ſet of theſe tides, after having been led into a great error by the only draught given to us for a guide.

Now being off the Hare's Ears, and reſolved to attempt this paſſage, you muſt ſteer by the land, (a very bold ſhore all round) from N. N. E. to N. E. until you are in the latitude of 8° 45′ North; then you will make two ſmall iſlands, low and woody; about 6 or 7 miles off ſhore, the weſternmoſt of which is called ALIGUAY, and the other SILLINA. You ſail between theſe and the main of MINDANAO, finding no ground at 40 fathoms within ¼ mile on either ſide of you. When you are making theſe ſmall iſlands, if the weather is tolerably clear, you will deſcry the iſlands of NEGROS and FUEGOS to the northward, and after you are paſt Aliguay will perceive alſo the iſland BOHOL to the north eaſtward: all theſe are very high land, as well as the major part of the neighbouring iſlands. At the ſame time, and before you round the point of Mindanao, then bearing E. by N. and appearing to be the northernmoſt extreme of the iſland, you open a fine deep bay; its entrance is about 3 miles wide, and has 3 or 4 ſandy coves, as you paſs along, where, I believe, a ſhip may find ſafe anchoring ground. There is a reef of rocks at the eaſt ſide of the entrance, which runs about half channel over, but the weſt ſide ſeems to be clear of danger. We ſaw a ſmall town on the ſouth-eaſt part of the bay.

Having paſſed the eaſternmoſt point of this bay, the land inclines rather to the ſouthward, for about 8 or 10 leagues, and then forms another large bay 15 or 16 leagues deep: and if it be very clear weather, on the northernmoſt part of it, will bear about E. by N. 28 or 30 leagues a high ſugar-loaf peak, for which you ſteer; this you will find to be CAMIGUIN ISLAND near the Coaſt of Mindanao; it is ſteep-to, with very high land, and has a ſmall iſland lying off the eaſt end of it. When you are paſſing Camiguin you will make the iſlands of LUCASAVA, LEYTE', and PANAON, from North to about N. E. with the

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the northernmoſt part or Point of Mindanao bearing about N. by E. in 9° 45′ latitude North, by obſervation, and about 4° to the eaſtward of the Hare's Ears.

You muſt then ſteer for the channel between Panaon and Mindanao, which is about 6 or 8 miles wide, having LOMASAVA on the larboard hand, or the northward of you. After you are in this channel, haul round Panaon till you make, to the eaſtward of it, the great iſland of Leyté, which you will know by a ſingle high peaked mountain, terminating in a low point very gradually toward the Eaſt, and ſome part of which ſhews a very pleaſant and open country.

Bearing North, or N. ¼ W. after you are up to this point that lies in 10° 18′ north latitude *per* obſervation, ſteer about N. N. E. until you are in the parallel of 10° 33′, when you would have the paſſage fairly open to the Main Ocean, leaving OMONHONE, SOLOAN, and two more ſmall iſlands on the larboard ſide, and LINAGO on the ſtarboard, with a whole chain of other iſlands reaching quite away, and falling in with the Iſle of Mindanao, in the latitude of 9° 35′ North.

When you are in the channel between Panaon and Mindanao, you will make two ſmall iſlands very woody, one of them right a-head, and the other about nearly to the ſouthward of it: now the only ſoundings we ſtruck were by hauling between the ſouthernmoſt one, and the iſle of Mindanao, where we found the ſmall Spaniſh ſettlement of SURIGAO, off which is a good clear anchoring ground, fine gray ſand, and by bringing the town to bear about S. by W. ½ mile diſtant: but if you bring it to bear S. W. 3 or 4 miles, or to the weſtward of that, neither your anchors nor cables will hold againſt the ſtrength of the tides which run there. All the land and iſlands thereabout are very woody, except that part of Leyté which has been mentioned, and no ſoundings are to be had at 80 and 90 fathoms, a cable's length from the ſhore and rocky beaches.

## INSTRUCTIONS FOR THE TRACK TO BE FOLLOWED FROM POOLO AORE, TO PASS ACROSS THE JAVA SEA, THROUGH THE STRAITS TO THE EASTWARD OF JAVA.

By Monſ. D'APRÈS.

WHEN you are 5 or 6 leagues to the eaſtward of POOLO AORE, you are to ſteer S. E. to make VICTORY ISLAND, which lies 35 leagues S. E. by E. from it, and in 1° 39′ latitude, North. The ſoundings in this paſſage are 30 fathoms, fine gray and whitiſh ſand. This iſland, or rather iſlot, looks at a diſtance like a pye; it is covered with wood, and has a little cove of white ſand on the ſouth-weſt ſide. Three leagues S. E. by E. from it lies a ſmall white iſlot.

From Victory Iſland, you ſail to the S. E. to get a ſight of *St. Julian's Iſlot*, diſtant 19 leagues S. E. by S. and in 49′ latitude: you may range it along with an offing of 1½ or 2 leagues. The courſe from this iſlot to the iſland of *St. Barbara*, is S. E. by S. and the diſtance 16 leagues. In ſailing from one to the other, you perceive on the eaſt ſide an aſ-



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ſemblage of ſmall iſlots to the number of 13 or 14, which lie 6 or 7 leagues to the northward of St. Barbara; they are high, and the northernmoſt is the higheſt.

St. Barbara Iſland, which lies under the Equator, is high land, and would be taken for two iſlands, as its extremities are lower than the middle, eſpecially the north eaſt point, whoſe appearance is that of a barn; this iſland is about 3 leagues round, the greateſt extent being from N. E. to S. W. its ſouth-weſt point, which is ſteep, ſeems to be cut off, and to the N. W. almoſt joining the iſland, are two ſmall rocks. You may anchor to the S. E. of this iſland in 25 fathoms, and get wood and water.

From St. Barbara Iſland you muſt ſteer away S. E. by S. eaſterly for the iſlands of Sooroot and Carimata, which lie on the ſouth-weſt part of the Iſland of Borneo. The ſoundings in this track are 26, 24, and 22 fathoms, which decreaſe to 20 and 18 when you approach Sooroot. They reckon 42 leagues, S. E. 3° S. from St. Barbara to Sooroot: and it is adviſable not to come near Sooroot in the night-time, leſt you ſhould fall, on the north ſide, amongſt ſome iſlots which are to the northward of Carimata, and where the ſhoals are dangerous.

Carimata is a very high iſland, and almoſt covered with clouds; it is $2\frac{1}{2}$ leagues long, about 1 league broad; and 18 or 20 leagues from *Succadana* river, in the iſland of Borneo; its ſouth point has a bank which ſtretches to the S. W. about $\frac{1}{2}$ a league. Sooroot (*Surute* or *Sooroteo,*) lies to the W. S. W. of Carimata, and in the channel between the two, which is broad enough, ſhips may paſs in a caſe of neceſſity, obſerving to range along Sooroot nearer than to Carimata; but it is better to keep in the offing. Theſe iſlands are inhabited. You may get water at the weſt point of Sooroot, in a ſandy plain at the foot of a hill of moderate height; and you can anchor in 10 fathoms water. The latitude of Sooroot is 1° 43′ South *.

Being Eaſt and Weſt of Sooroot, about 2 leagues diſtance, you ſteer to the S. E. to make Poolo Mancop, which lies in 3° 3′ ſouth latitude; 18 leagues S. E. of Sooroot, the ſoundings are 18 fathoms, ooze; from hence you have 17, ſand; then 16 fathoms, ſand and ooze. In this courſe you perceive ſeveral iſlands on the eaſt ſide. It is adviſable not to take a greater offing than 20 fathoms, on account of *St. Clement's Shoal*, which lies 10 leagues S. W. of Poolo Mancop: you ought not likewiſe to go farther than 16 fathoms toward the land. Poolo Mancop lies on the extremity of a bank projecting about 10 leagues to the S. S. W. of Borneo; it is not to be approached, on account of the irregular depths of water. You perceive, as I have ſaid already, ſeveral iſlots along the Coaſt of Borneo, between Sooroot and Poolo Mancop. The tides are very ſtrong in this part, and you muſt be careful of their ſetting, eſpecially during the night.

In theſe general inſtructions of M. *D'Après*, no notice is taken of the rock or reef, 20

* According to Mr. *Robertſon*, Carimata may be ſeen 15 leagues. Souroutou (Sooroot) is not near ſo high or ſo large. The north part of Carimata is in latitude 1° 33′ South, and longitude 108° 50′ Eaſt of Greenwich, by Captain *Fraſer's* chronometer. Mr. *Farringdon*, now Captain of the *Laſcelles*, by obſervation of the Sun and Moon, makes Sooroot iſland to lie in 108° 45′: as he had not the objects Eaſt and Weſt of the Moon it cannot be ſo exact; however it agrees tolerably well with the chronometer: the latitude of its north part is 1° 37′ South.

miles

miles South of Sooroot, and in the very track recommended from that iſland. The American ſhip *Ontario*, Captain *Whetten*, was loſt there, January 4th, 1798, and the following account given by Mr. *Cowman*, the firſt officer of the ſhip.

" This reef is extremely dangerous, being in the fair way between Billiton and Soorotoo. From the obſervations we could make from the wreck, and the boats in paſſing and repaſſing to the ſhip *Swift*, it is not more than a mile in circuit, compoſed of pyramidically formed rocks, the tops of ſome of them dry at low water: from their formation verging to ſharp points, the breaking of the ſea is not perceivable from the topping of a common ſea; and it is quite ſteep-to, having 19 fathoms a ſhip's length from the rocks. As this reef is not laid down in any chart, I have called it ONTARIO'S REEF. The following bearings were taken from the wreck of the ſhip *Ontario*. South-weſt point of *Quoin* iſland, and north-eaſt end of ditto juſt ſhut in with the weſt end of *Soorotoo*; the eaſt end of *Soorotoo* open $\frac{1}{4}$ of a point with the weſt end of *Carimata*; the eaſt end and point of *Soorotoo* at N. N. E. diſtant 19 or 20 miles. No other land in ſight. The computed latitude of the reef is 1° 50′ South."

Ships which intend to paſs through the Straits of *Bally* or *Lombock*, after they have doubled St. Clement's ſhoal, ſteer to the ſouthward, to get a ſight of *Carimon Java*; this iſland lies in 5° 46′ ſouth latitude, and about 15 leagues N. W. by N. of *Mandals* or Mandalique *Iſland*, ſituated at the weſt point of *Rambang Bay*; having approached the Coaſt of JAVA, they range it along, toward the Eaſt, as well as the Iſle of MADURA: off this coaſt, which affords a delightful proſpect, there is no danger but what is laid down in the Chart; the depth you find in ſailing along being proportionable to the diſtance you are from the ſhore, enables you to continue your courſe during the night, and to anchor there in caſe of a calm, or an adverſe current.

The north-eaſt point of Madura lies in 6° 49′ latitude South; and about 6 leagues to the E. S. E. you come to PONDY ISLAND that makes the entrance of the ſtraits eaſtward of Madura, through which you are to paſs to go to the Straits of Bally, Lombock, and the others lying toward the Eaſt. Therefore, after you have paſſed Pondy, at $\frac{3}{4}$ league diſtance, you ſail to range along the weſt ſide of GILAN or RESPONDY, from whence your courſe is to the S. S. E. toward CAPE SANDANA, the north-eaſt point of Java, being very careful of the *Muyden's Rocks*, which are 2 leagues diſtant from it, N. by W. 3° W.

Cape Sandana being doubled, you are to ſteer toward GILBOANG ISLAND, to paſs either within or without it, and then enter the ſtraits of BALLY. I muſt obſerve that theſe ſtraits, in coming from the ſouthward, cannot be attempted with perfect ſafety but in the N. E. Monſoon; and are to be avoided in the contrary Monſoon, on account of the want of wind, and the ſtrong currents met with in the narrows, and whoſe violence drives the ſhips on the Coaſt of Java, or that of Bally, where you find no anchorage. Several Engliſh ſhips have experienced it, and found themſelves in the greateſt diſtreſs.

The Straits of LOMBOCK, to the eaſtward of Bally iſland, appear to deſerve the preference, being about 4 miles broad, though they have no anchoring places, and their tides are very ſtrong. To go to theſe, after you have paſſed Reſpondy iſland, you ſteer S. E. by S. in order to make Bally iſland, which you coaſt along till you come to the entrance of the

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Straits; I ſhall give no particular deſcription of them, not having been able to get any, nor of the other ſtraits to the eaſtward, as far as *Larantooca*, to which you may go in, in ſailing along the north ſide of the iſlands.

*N. B.* This forced omiſſion of M. *D'Après* is ſupplied in the ſubſequent ſheets, where a circumſtantial account will be found of all thoſe ſtraits.

## INSTRUCTIONS FOR SAILING FROM BATAVIA TO THE STRAITS OF MACASSAR.

Tranſlated from the Dutch, and communicated by Captain PARKER.

HAVING paſſed the *Rhynland Beacon*, on the larboard ſide, you ſteer right upon the little iſland *Edam*, in latitude 5° 56′ South, and ſail between it and *Alkmaar* Iſland. Edam bearing North 1 mile (nautic) ſhape your courſe E. N. E. 20 leagues; ſteer then E. by N. to the latitude of 4° 15′; and then due Eaſt, keeping this latitude, will bring you in ſight of POINT SALATAN*, and about 2 leagues diſtant.—Come no nearer the point than 9 fathoms: from that depth it ſhoalens ſuddenly to 5 fathoms.

Point Salatan, whoſe latitude is 4° 8′ South, bearing North, in 9, 10, or 11 fathoms, you will coaſt Borneo; ſteer then E. by S. 23 Engliſh (nautic) leagues; it will bring you in ſight of a high iſland, called MORESSES †, with ſeveral iſlots near it; you may paſs to the northward or ſouthward of it: leaving it on your larboard hand two Engliſh (nautic) miles off, at that diſtance, when it bears North, you will have 16, 17, and 18 fathoms water.—*N. B.* During the Weſt Monſoon the currents in the months of December and January ſet ſtrong between Borneo and Java, in the fair way, E. N. E. which muſt be attended to.

From the iſland Moreſſes, keeping your courſe E. N. E. $\frac{1}{4}$ E. 7 or 8 leagues will bring you in ſight of three ſmall iſlands called DWALAER, and the TWO BROTHERS; the northern one is the Dwalaer, and the two ſouthern ones the Brothers. You paſs between Dwalaer and the Two Brothers in 12 fathoms, clay and mud. When paſt them you will deepen to 20 and 21 fathoms, clay and mud. The latitude of Dwalaer is 4° 10′, and of the Two Brothers 4° 24′, they lie N. N. W. $\frac{1}{4}$ W. and S. S. E. $\frac{1}{4}$ E. $4\frac{1}{4}$ leagues from each other‡.

Being amongſt thoſe little iſlands, you will ſee the north-eaſt part of GREAT POOLO LAUT, bearing between the N. W. by W. and N. W. and the northernmoſt point N. by W.—When you are paſt the Dwalaer and the Two Brothers, the currents begin to ſet N. E. by E. and N. E. Under Great Poolo Laut lie three large iſlands and a ſmall one, but they are

* Point Salatan, the ſouth point of Borneo, is low and even, with high land at the back of it. The Engliſh accounts place it in 4° 12′ latitude South.

† Called alſo *Maruſſa*, *Monoreſſar*, and by the ſailors *Monſieurs*; it lies in 15° 21′ latitude South; it is pretty high land. To the ſouthward of it about 4 leagues, lie the ſmall iſlands of *Laurot*, or LITTLE POOLO LAUT, which are full of hummocks, and not high.

‡ The diſtance between the iſland Dwalaer, and the Brothers, according to a note of Captain *Parker*, appears to be more than 14 miles. This iſland is not high, and when bearing W. N. W. has the appearance of a ſaddle. The Two Brothers are very ſmall, and ſteep-to.

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cloſe inſhore of Poolo Laut, on the north ſide thereof*. The north-eaſt point of Great Poolo Laut will be known by a ſmall rocky iſlot lying off the ſaid point.

From the Dwalaer and Two Brothers, ſteering N. E. by N. 10½ or 11 Engliſh (nautic) leagues will bring you in ſight of three ſmall iſlands called the THREE ALIKE ONES, and alſo *Maragalong*, or *Samara-Battea*, (in latitude 3° 37′ South) which iſlands you leave on your larboard ſide, or 2 Engliſh (nautic) miles off. The depth between Dwalaer and the Brothers to the Three Alike iſlands, with a N. E. by N. courſe is 14, 15, 16, 17, 18, and 19 fathoms, clay and mud: here may be obſerved that the currents ſet N. E. and N. E. by E.

From theſe ſmall iſlands keep, if poſſible, the depth from 8 to 14 fathoms, coming no nearer the Borneo ſhore than 8 fathoms, nor farther off than 14; until you are in latitude 2° 10′ ſouth, when you are paſſed all danger on the coaſt of Borneo; for in 16 and 17 fathoms, from the Three Alike iſlands, lie *Two Sand-banks* even with the water's edge.

From 2° 10′ ſouth latitude with an E. N. E. courſe, you will have for a while 14, 15, 16, and 18 fathoms; but in 1° 50′ South, in ſight of Borneo, you will find 22, 25, and 30 fathoms; in 1° 20′ South, 10 leagues off Borneo, 28, 29, 30, 32, and 35 fathoms, clay and mud. And in 0° 40′ South, 50 and 45 fathoms, 12 leagues from Borneo; which land hereabout is very high.

In latitude 1° 0′ North, you will ſee the Coaſt of Borneo, 6 or 7 leagues off, and the Coaſt of CELEBE's, north-weſt part, in the E. ½ N. a great way off, and no ſoundings.

From the latitude of 1° 0′ North, we ſteered N. E. 24 leagues, and obſerved in 1° 33′ North. We found the iſlands Banca to lie in 2° 10′ North, and the iſlands between *Banca* and *Sangir* from 2° 15′ to 2° 20′ north latitude.

## THE STRAITS OF MACASSAR.

THESE Straits, above 130 leagues in length, lie between the iſland of Borneo to the Weſt, and the iſle of Celebés or Macaſſar to the Eaſt. They are 40 leagues broad at their entrance, and for 80 leagues farther North, where their width is reduced to 25 leagues. A cluſter of numerous ſhoals and ſmall iſlands, which begin about 17 leagues from the north-eaſt point of Great Poolo Laut, extend acroſs the whole ſtraits from Weſt to Eaſt, leaving on each ſide a clear paſſage, ſuppoſed from 8 to 10 leagues broad. To this cluſter, called by the natives BALABAGAN ISLANDS, the Dutch have given the name of LITTLE PATERNOSTERS, to diſtinguiſh it from another cluſter of ſhoals ſituate to the ſouthward, in the Celebés Archipelago; theſe are named the *Great Paternoſters*.

The weſtern paſſage, which is the beſt, lies between the Paternoſters and Borneo, and is univerſally followed, in a courſe parallel to the ſhore of Borneo, by ſhips going to or coming

* About 3 leagues to the northward of the eaſternmoſt of theſe iſlands, and alſo cloſe inſhore of Poolo Laut, lies the remarkable iſlot called THE BUTTON. At firſt ſight it ſhews itſelf like a ſingle tree; but when near it you deſcry a high round rock, which appears as if cut by art. Seven fathoms water are found cloſe to it, all round, except the north-weſt part, where there is a ſhoal.

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from China. You have ſoundings there from the Paternoſters to Borneo, whereas no ground can be found between them and Celebés. Beſides it is probable, as a learned navigator has obſerved, that the large rivers of Borneo will occaſion a more ſenſible tide than on the ſteep coaſt of Celebés. This tide, as well as the Paternoſters, muſt check a current from the northward, which is moſt likely to run to the ſouthward in the deep ſea of Celebés, to which you ought to get over as you approach the Line, where the Coaſt of Borneo embays, and is reported to have no ſoundings, that coaſt near *Kanneeoongan* Point being ſteep-to. Beſides Captain *Carteret* repreſents that in the middle of November, the S. W. winds on the Coaſt of Celebés conſtantly drew round as he got 6 leagues off that ſhore, till they became W. N. W. and N. W. towards the Borneo ſide.

Though the Weſt Paſſage has been much frequented of late, the written directions for its navigation are leſs copious than the importance of the ſubject requires, or more difficult to obtain than we had imagined.

From Great Poolo Laut, all the way up to the Paternoſters, ſoundings are found in a direct line, from 10 to 28 fathoms, clay ground, or mud; and ſometimes broken ſhells, and no danger from the Three Alike to the Paternoſters. Oppoſite the north end of theſe ſhoals is TANJONG ARE's, or *Ragged Point*, a low headland on the iſle of Borneo. Mr. *Robinſon*, chief officer of the *Duke of Montroſe*, remarks that the ſhip being, December 14, 1788, at 1 P. M. in latitude 2° 14′ South, the north part of Ragged point bore N. W. by W. diſtance 4 or 5 leagues; at the ſame time they ſaw *two ſand banks* dry and almoſt even with the water's edge. "Theſe appeared," ſays Mr. *Robinſon*, "to be almoſt 4 or 5 miles from us; and I ſuppoſe they may be about 3 leagues from the Borneo ſhore. At this time the neareſt one to us bore due Weſt, and the one neareſt the ſhore was open to the ſouthward of it. We had 12 fathoms water at the time. Great caution ought to be taken hereabout, particularly in the night, as thoſe banks lie very much in the fair way between the Paternoſters and the Coaſt of Borneo."

Theſe two *Banks* or *Shoals*, which lie between Ragged Point and Shoal Point, were ſeen by the *Bridgewater*, *True Briton*, *Woodford*, and *Albion*; when at anchor at 1 P. M. 24th July, 1795," ſays one of the journals, "Ragged Point bore N. W. $\frac{1}{4}$ N. diſtance 15 miles, Shoal Point S. W. $\frac{1}{4}$ S. 15 miles, in latitude 4° 22′ diſtance from the neareſt ſhore about 8 miles, in $9\frac{1}{2}$ fathoms, mud.

"They are very dangerous, as all the time we ſaw them they were covered; but the ſea broke over them very high, owing to the large ſwell that was up from the ſouthward: they were nearly half-way over between the Borneo ſhore, and the Paternoſters. The ſouthernmoſt ſhoal is very ſmall, but the north one much larger. We experienced there a ſtrong eaſterly current. I have laid Ragged Point down in the latitude 2° 10′, and Shoal Point in 2° 34′, our own obſervations, both outward bound and now, agreeing; and Captain *Horſbrough*, of the *Anna*, who appears to have been very correct in many inſtances, making them the ſame. The ſouthernmoſt ſhoal is the more dangerous, as there is no break upon it, when the water is ſmooth, and we had 9 fathoms very cloſe to it."

Mr. *Robinſon* obſerves, that all along what is called Ragged point, lies the moſt dangerous part

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part of the Straits. In ſtanding off, after you deepen above 12 fathoms, the ſoundings were very irregular, deepening and ſhoaling 2 or 3 fathoms at a caſt, as quick as the lead can be hove: when ſtanding inſhore to 5, or even ½ leſs than 5 fathoms; and off, to 10, 11, 12, or 13, had always very regular ſoundings; ſo that it plainly appeared that the ſafeſt method was to keep nearly in thoſe depths. In ſtanding inſhore, after paſſing the depth of 7 fathoms, they found it very flat, and ſeldom above 1 foot in a dozen caſts of the lead, the bottom ſtrong clay.

The ſouthernmoſt of the Paternoſters was ſeen by the *True Briton* going to China, November, 1785. It is a low ſandy iſland, with three ſmall trees upon it: their account places it in latitude 2° 50′ South, and the ſhip paſſed at the diſtance of 3 miles from it.—Keeping on a N. N. E. courſe 18 miles, they ſaw a grand cluſter of iſlands (THE PATERNOSTERS) bearing from N. W. to E. N. E. which they endeavoured to get a paſſage through, but without ſucceſs, from the immenſe number of ſhoals which are ſcattered among them; ſo that they were obliged, after having been ſix days in the middle of that cluſter, to return nearly the way they got in. They found the current generally ſetting to the ſouthward, though not ſtrong. The iſlands are all woody, and ſome of the wood as hard as iron: they found much of it lying cut down, and ſuppoſed it had been done by the people in the prows, which then were about the ſhip, but ſo ſhy that none of their men would venture on board. The only living creature ſeen on theſe iſlands, was a bird like a pigeon.

From abreaſt of the pitch of Ragged point, the courſe through the ſtraits is to N. E. along the coaſt of Borneo, till they reach the point of that iſland called *Kanneoongan*, and by the Dutch *Aert Gyſſens Point*, or *Cape Gyſſels*. From this to POINT DONDO on Celebés which is prodigious high land, the Straits are narroweſt, being not more than 25 leagues wide, as we have already obſerved. From Kanneoongan, the track acroſs the Straits is likewiſe to the north-eaſtward to make *Cape Rivers* the north-weſtmoſt point of Celebés.

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## THE PASSAGE FROM BATAVIA TO CHINA, THROUGH THE STRAITS OF MACASSAR, BEFORE DECEMBER.

By M. HORSBROUGH.

IF a ſhip ſails from or paſſes Batavia, bound to China, before the middle of December, her beſt track is through the Straits of Macaſſar. On leaving Batavia you go between Edam and Rhynland Reef Beacons, then through the channel between Leyden and Alkmaar, or between Edam and Enkhuyſen, as the wind may ſerve.

The courſe from Edam to the *Moreſſes* is N. 80° E. 184 leagues: after leaving Edam it is beſt to ſteer E. N. E. 120′, paſſing to the northward of *Carimon Java*, which lies in 5° 50′ South. The currents ſometimes ſet to the E. S. E. in the N. W. Monſoon; and as you do not often get an obſervation this precaution is neceſſary. You have regular ſoundings in this track, deepening as you get to the E. N. E. of Edam, at 40 leagues, to 28 or 30 fathoms;



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thoms; then ſteering E. by N. to Eaſt you will carry 30 to 34 fathoms, till within 40 or 45 Eaſt of *Point Salatan*; then you may keep E. ½ N. and the ſoundings will gradually decreaſe: in 14 or 15 fathoms you will paſs *Point Salatan* 7 leagues diſtant. It lies in 4° 9′ South 14 or 15 leagues to the weſtward of the *Moreſſes*.

A ſhip ſhould paſs Salatan at 8 or 9 leagues at moſt, to give a wide birth to the Iſland *Arentas*, near which to the weſtward lie ſome ſhoals, on which an American ſhip ſtruck in July 1793.

The *Moreſſes* is a ſmall but high iſland riſing in a peak to the middle, with ſeveral ſmall iſlands, and ſome large rocks above water about it; it lies in 4° 25′ ſouth latitude, and 116° 3′ eaſt longitude: the northernmoſt of the little *Poolo Laut* lies to the S. W. of the Moreſſes, and the paſſage between them is better than to the northward of the Moreſſes, being 8 leagues wide, with 18 fathoms mid-channel; in the N. W. Monſoon it is beſt to keep neareſt the Moreſſes.

*Dwalaer* bears from the Moreſſes N. 54° Eaſt 7½ leagues in 4° 12′ ſouth latitude, and 116° 20′ eaſt longitude. The *Two Brothers* are nearly due eaſt, from the Moreſſes, 9 or 10 leagues in 4° 26′ latitude, and 116° 32′ longitude. The channel between Dwalaer and the Brothers is but 6 leagues wide, with 16 fathoms mid-channel: there is alſo a good channel to the northward of the Moreſſes and Dwalaer, if neceſſity ſhould oblige you to go that way. The Two Brothers are ſmall; Dwalaer rather lower than them, is higheſt at the eaſt and weſt ends.

The *Three Alike Iſlands* off the ſouth point of Poolo Laut, are all moderately high; there is water for a ſhip between the ſouthernmoſt and middle iſlands, but the paſſage is very narrow. The *Button*, a ſmall round iſland, lies 1 mile S. E. of the ſouthernmoſt iſland; it reſembles a button very much, and may be paſſed cloſe to the eaſt ſide. The Three Alike bear from Dwalaer N. 47° Eaſt 15 or 16 leagues. The ſoundings between them 16 and 17 fathoms. At a diſtance from 4 to 6 leagues off Poolo Laut, in paſſing the Button at 1 mile, you have 11 and 12 fathoms. The Three Alikes are ſmall, but may be ſeen from the deck 5 or 6 leagues; they lie about 6 leagues off the eaſt ſide of Great Poolo Laut, and the channel between them is equally ſafe as going on the outſide, there being 13 fathoms within a mile of them on the weſt ſide, and 20 to 22 at 3 leagues to the eaſtward of them. The body of the Alikes is in 3° 41′ South, and 116° 54′ Eaſt.

The Eaſt ſide of *Great Poolo Laut* appears to be entirely clear of danger, the ſoundings being from 13 to 15 fathoms at 2 or 3 leagues, and from 20 to 22 at 8 or 10 leagues off it, but in ſome places, eſpecially towards its north end, they are not quite regular: ſeveral ſmall iſlands lie near the ſhore abreaſt of the Alikes. Obſerve that a reef is ſaid to run out ſome diſtance from the north-eaſt point of Poolo Laut, between which point and the north one is a deep bay, with ſome iſlands in it; this north-eaſt point is in 3° 23′ South, and the north point in 3° 13′; the body of the iſland being in 116° 41′ eaſt longitude: the eaſt ſide of Poolo Laut is middling high, deſcending towards the north-eaſt point, but the north-weſt part is very high. In turning with a contrary wind off the eaſt ſide, the beſt way is to ſtand off to 20 fathoms 8 or 9 leagues, and into 14 or 16 fathoms toward the ſhore.

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ſhore, 2 or 2½ leagues off. However, do not always depend upon theſe depths, as in ſeveral ſpots you will have 17 and 18 fathoms nearer in; the bottom is all mud.

From the Three Alike Iſlands Shoal Point bears N. 6° W. 22 leagues. The land between them is in ſome places rather low, the ſoundings are in general very regular, ſometimes overfalls from 10 to 8 and 7 fathoms, ſoft ground. Stand into 7 or 8, and off to whatever depth you pleaſe; 15 or 16 fathoms are found 6 or 7 leagues off ſhore.

*Shoal Point* is the ſouth extreme of a level piece of land 9 leagues in length, which land on the ſouth ſide forms a deep inlet, appearing like a river; in paſſing the point you ſhoal 2 or 3 fathoms on a ſtrait courſe, and when paſſed it deepens again; there appears to be a reef extending to the ſouthward of it, ſome ſhoals and rocks being detached from the land; it may be approached to 6 fathoms without danger, the ſoundings decreaſing gradually. The point lies in 2° 35′ South, and 116° 47′ Eaſt.

From Shoal Point to *Ragged Point* the courſe is nearly North 8½ leagues; in this track the depth decreaſes faſt in ſtanding for the ſhore. In turning a ſhip ſhould ſtand no nearer than 10 or 11 fathoms, nor farther off than 16, to avoid two ſmall banks even with the water's edge, and bearing from Ragged Point S. E. 4 or 5 miles; they appear to lie at leaſt 4′ off ſhore, and it is judged there are 7 fathoms in the ſtream of them. There are alſo two ſand banks above water, ſaid to bear E. by S. or thereabout, from the other two, and to be in the ſtream of 17 fathoms; but it is thought they muſt be farther out, as they could not be ſeen from the *Anna's* maſt-head, when paſſing in 14 fathoms. A ſhip ought not to go to the eaſtward of theſe banks, as ſhe is thereby liable to get among the Paternoſters, which ought not to be approached. The ſoundings between the inner and outer banks are pretty regular when in 10 or 11 fathoms, but in 13 or 14 there are overfalls.

If a ſhip ſhould be here in moderately clear weather, with a ſteady breeze, there can be little danger in running in the night; in this caſe if ſhe paſs Shoal Point in 10 fathoms ſhe will be about 3 leagues off ſhore; let her keep in 11 to 16 fathoms till 4 or 5 leagues to the northward of the point, then carry 13 or 14 fathoms till Ragged Point bears W. by N. or W. N. W. which will inſure her being clear of the banks; that depth will give the inner banks a birth of 6 or 7 miles. Ragged Point is the ſouth-eaſt extreme of the land on the ſouth ſide of Paſſir Bay; it lies in 2° 10′ ſouth latitude, and in 116° 48′ eaſt longitude: a reef is ſaid to extend a ſmall diſtance from it in a northern direction.

The *Little Pater Noſters* are a cluſter of ſmall iſlands, with many ſhoals and ſand banks interſperſed among them; their weſt ſide is lined with dry ſands and coral flats, which ſhould not be approached. In July 1792, the *Anna* made the eaſternmoſt of them, and ſteered along their northern ſide, at about 4 leagues diſtance, to gain the Borneo ſhore; had no ſoundings till the north-weſternmoſt bore ſouth, ſeen from the main top; then got 34, 20, 14 fathoms, coral rocks, and anchored: after weighing ſtood to the weſtward with the long boat a-head; had great overfalls 30, 16, and 44 fathoms, coral rocks; then no ground at 30 and 35. When the two north-weſternmoſt iſlands bore about S. E. ſeen from the maſt-head, ſaw 9 dry ſand banks, (two of them with ſome ſhrubs on them) from



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S. E. by S. to South; off the neareſt 7′ or 8′; at the ſame time had very great overfalls; on one ſpot 5 fathoms; on another the long boat had 5½, the ſhip being in 12 fathoms at ½ a cable's length diſtance. When the high land of Borneo became plain from the deck, bearing W. by S. ½ S. The two northernmoſt of the Paternoſters juſt in ſight from the maſt-head, in one with the body of the ſand banks, bore S. by E. deepened to 40 fathoms; then no ground at 50 in latitude 2° 6′ South: after running to the weſtward 2 miles got ground at 36, and afterwards ſhoaled very gradually to 20 fathoms, all mud and gravel: in 20 fathoms ſaw Ragged Point W. S. W. 7 or 8 leagues, and ſteered for it till in 15, when we kept along ſhore, and paſſed the two inner banks at 6 miles diſtance in 13 and 14 fathoms.

The *Coral flats* appear to extend 8 or 9 leagues to the N. W. of the Paternoſters, as the *Anna* was nearly at that diſtance before ſhe got clear of them; they are very numerous and probably dangerous. To avoid theſe flats you ſhould not on leaving Ragged Point ſtand off to more than 20 or 22 fathoms until to the northward of 2° ſouth latitude; and coming from the northward you ought not to paſs this latitude till you get in with the Borneo ſhore. The north-weſt Paternoſter lies in 2° 8′ South, and in 117° 42′ Eaſt, being 54′ from Ragged Point. The northernmoſt ſand bank to the weſtward of the iſlands is in 2° 7′ or 8′ South, and 3 or 4 leagues to the weſtward of the neareſt iſland. The northernmoſt iſland on the eaſt ſide of the cluſter lies in 2° 10′ South, and in 117° 58′ Eaſt.

The ſouth part of *Donderkin* (or *Donderkoms)* Iſland, bears from Ragged Point N. 32° E. 30 leagues in 0° 54′ South and 117° 36′ Eaſt. The coaſt from Paſſir Bay to Donderkin is low near the ſea with ſeveral high mountains inland: it is thought it may be approached without danger to 25 or 30 fathoms, 4 or 5 leagues off ſhore; and a ſhip, after being to the northward or 2° South, may ſtand acroſs to either ſide of the Straits, there being no danger except the reef which environs Donderkin: that iſland is long and low, and lies cloſe to the eaſt ſide of Borneo; the channel between it and Borneo is very narrow, appearing like a river from the ſouthward; it is ſurrounded by a ſhoal, which is thought to be moſtly ſand, and extends ſeveral miles from the iſland, the depth diminiſhing gradually in approaching the ſouth and ſouth-eaſt ſides of it; but on the north and north-eaſt parts, it is ſaid to be ſteep-to. There are no more ſoundings on the eaſt coaſt of Borneo, after you have paſſed this iſland to the northward.

*Cape William*, in the iſle of Celebés, in 2° 20′ latitude South, and in 118° 58′ eaſt longitude, is a high land, forming a bay to the northward; from thence along the weſt ſide of Celebés the land is likewiſe very high, eſpecially at ſome diſtance from the ſhore. It is a bold deep coaſt, and at 3 or 4 leagues off it no ground is to be got. Here the current, in February 1792, was found to ſet ſtrong and conſtant to the ſouthward, ſlacking a little inſhore.

It is beſt to work as much under Point *Samſa* as poſſible; this Point, named alſo *Cape Temoal*, is a high headland, extending a great way out to the weſtward. There is a very deep bay on the north, and another on the ſouth ſide of it. It lies in 0° 1′ North, and 119° 26′ Eaſt.

There

There is a ſmall round iſland, about 5′ off the point to the weſtward, which is called by the Dutch *South Wagter*, or *Watcher:* a reef runs from its ſouth end, and ſome rocks are ſeen above water; it is therefore imagined there cannot be a ſafe paſſage between it and the point.

Point or *Cape Donder* (Dondo) bears from Samſa N. 33′ Eaſt, 19 leagues, and from the ſouth point of Donderkin N. 54′ E. 58 leagues. *Cape Rivers* (Stroomen Hook) bears from Donder N. 55′ E. 16 leagues, and lies in 1° 15′ latitude North, and in 120° 34′ eaſt longitude. It is not neceſſary for a ſhip to keep near the Borneo coaſt, after getting as far North as Donderkin, or being clear to the northward of the Paternoſters; ſhe may then ſteer direct for Donder Point, if the wind permits. Donder lies in 0° 48′ North, and 119° 57′ Eaſt: its land is exceeding high, and between it and Cape Rivers are ſeveral iſlands. Cape Rivers projects from the high land near it, appearing at a diſtance like an iſland, with 3 ſmall iſlands very near it.

*Point Kanneoongan*, or *Aert Gyſſen's Cape*, is the outward extreme of a remarkable long piece of land, which runs out near a degree from the main land of Borneo, and is only a few leagues broad; it lies in latitude 1° 4′ North, and 119° 7′ eaſt longitude. There is middling high land about 3 leagues to the ſouthward of it. This ſhore is like the Celebés ſide ſteep-to; when under the ſouth ſide of this neck of land, a ſhip finds no ſoutherly current, though a very rapid one runs on the outſide; and as ſoon as the point is open, you are ſwept away to the ſouthward, between it and Dondo. The Seven Stones laid down in the old charts about mid-channel, between Kanneoongan and Point Dondo, do not exiſt; nor are there any iſlands except the 7 which lie to the ſouthward of that point in 0° 32′ north latitude; theſe are low and ſcarcely diſtinguiſhable from the main land, except the outermoſt, called the *North Watcher*, and which lies at a conſiderable diſtance from the others about 6 leagues off ſhore: in 33′ or 34′ north latitude, and appears the ſmalleſt of all. A ſafe paſſage is ſaid to be between it and the others.

Between Dondo and Kanneoongan is the narroweſt part of the Straits, being only 18 leagues wide. Having reached Dondo, a ſhip may either ſtretch to the N. E. or keep along Celebés as far as Cape Rivers, or farther if neceſſary: the ſafeſt way is to get northing as well as eaſting, that you may paſs through among the Sangir iſlands as far to the northward as poſſible; thereby you prevent being ſet down towards Moratay by the S. W. current, which generally prevails in the N. E. Monſoon, between Mindanao and Celebés. Several ſhips have paſſed on the ſouth ſide of the Iſland Siao, and with great difficulty could weather Moratay. The channels among the Sangir iſlands are all ſafe, being ſteep-to, and no ſoundings near them.

REMARKS.

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# REMARKS ON THE EASTERN PASSAGE TO CHINA, FROM INDIA, THROUGH THE STRAITS OF MACASSAR, &c.

By M. HORSBROUGH.

"THE beſt time to leave Bombay is the end of September, or beginning of October; you then make ſure of getting through the Straits of Macaſſar, before the northerly winds and ſoutherly currents ſet in; theſe generally happen about the beginning or middle of January, and continue till the firſt or middle of March.

"The *Anna*, in 1793, entered the Straits, paſſing *Poolo Laut* the 16th of January, and did not reach *Point Dondo* till the 6th of March, diſtance only 116 leagues. All this time had ſtrong ſoutherly currents, and northerly winds. There were at the ſame time two American ſhips in the Straits bound to Manilla; one put back to Batavia, the other obtained her paſſage by perſevering.

"The *Canada*, a whaler from London to China, got up to Point Dondo in February 1792, intending to proceed by the Sangwy paſſage into the Pacific Ocean, but after beating three weeks without gaining any ground, ſhe ſtood on a wind to the north-eaſtward made the eaſt point of *Sooloo*, and paſſed through a narrow channel between two iſlands on the eaſt ſide of it in 5, 6 and 7 fathoms, muddy ground; then ſhe went acroſs the *Mindoro* ſea, and between *Appo* Bank and the *Calamianes*, from whence ſhe worked up the weſt coaſt of *Luconia*, and made a good paſſage from Point Dondo.

"Leaving Bombay at the time ſaid before, the beſt track is to keep round Ceylon as far as Dondra Head; then to ſtretch off on a wind, and make as much eaſting as poſſible before you reach the Line. The *Anna* experienced a ſet from 30′ to 50′ per day in this track, and was 6° to the weſtward of account, on making the *Straits of Sunda*. From Point *Dondo* ſhe paſſed to the weſtward of *Magindanao*, *Negros*, *Panay*, *Mindoro*, and *Luconia*, and made a tolerable paſſage. N. B. In running for the Straits of Sunda, it is well to make *Engano* Iſland, whoſe ſouth end is in 5° 26′ ſouth latitude, and 102° 20′ eaſt longitude. The peak on Prince's Iſland lies in 105° 23′, and *Cracatoa* in 105° 37′ longitude Eaſt.

## CONSIDERATIONS ON THE PASSAGES TO AND FROM CHINA.

Extracted from Mr. DALRYMPLE'S MEMOIR, 1788.

THE many ſhips for China, which go round by India, may make it neceſſary to offer ſome remarks concerning the proper meaſures to be purſued by ſuch of them, as ſhall not be early enough to make their paſſage to Canton, in the uſual way, through the China Sea, by the *Funnel*. (The *Garganta* of the Spaniards).

It is impoſſible to aſſign a day, after which that Paſſage ought not to be attempted; but Mr. *Dalrymple* does not think ſhips have any chance to ſucceed, by that paſſage, if unable to reach Sapata by the middle of October, at the furtheſt.

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It appears obvious, that all ſhips bound to China from any part of India, whether from the *Malabar Coaſt*, the *Coromandel Coaſt*, or *Bengal*, ought to paſs the STRAITS OF MALACCA, except during a war.

After getting out of the Straits, their object is to go to China by the COMMON PASSAGE if they can; but their proceedings muſt be guided by the winds they find: if theſe permit, they ſhould ſtand up in the ordinary courſe towards *Condore* and *Sapata*; for a very few days will carry them to the northward of Karang-Bander, and ſecure their paſſage, by the Coaſt of Luzon (Luconia). But if they find the winds contrary, they muſt conſider, what other Paſſage they will purſue; ſince, in caſe the ſteady N. E. winds are ſet in off Condore or Sapata, it is in vain for them to make the attempt by the common paſſage up the *Funnel*; but if the winds are variable, and ſometimes to the ſouthward, they ſhould certainly make the attempt; and when paſt the latitude of 12° North, ſtand to the eaſtward, whenever they can without decreaſing their latitude, and to the northward when they cannot make an Eaſt courſe; till they have got into 14° north latitude, then it will be beſt to keep to the eaſtward, even if they ſhould go to the ſouthward of Eaſt: but they muſt take care not to diminiſh their latitude under 13° 30′ North, on account of Breakers reported to lie 5 or 6 leagues to the weſtward of Mindoro.

Ships bound to China, from India, too late to paſs by the *Funnel*, have two options, *viz.* to go to the North, or to the South, of BORNEO; both afterwards branching into ſeveral paſſages.

Ships, which have ſtood over to the eaſtward from Condore and Sapata, have unexpectedly fallen in with many dangerous ſhoals; erroneouſly ſuppoſing, that the vacant ſpace in the Charts indicated that part to be free from danger, inſtead of being unexplored: in ſuch circumſtances, I ſhould be inclined to get as ſoon as poſſible into the common track from TIMOAN (Poolo *Timon*) towards BALAMBANGAN.

In ſtanding over from the Straits of Malacca towards the north end of Borneo, ſhips may paſs, either on the North, or South, of the ANAMBAS and NATUNAS, as circumſtances may occur. The track towards Balambangan, to the northward of theſe iſlands, is moſt free from ſhoals; thoſe ſeen by the *Royal Charlotte* and *Louiſa**, being the only diſcovered dangers; to the ſouthward and northward of this track, are many ſhoals already known, and it is likely there are many more not yet diſcovered; which require conſtant attention to avoid, by a good look-out, and boats a-head. The SOUTHERN ROUT has however the advantage of ſoundings, and the probability of better weather; at the ſame time that, late in the ſeaſon, it is alſo likely the winds will be moſt favourable towards the Coaſt of Borneo.

When a ſhip has got over towards Balambangan, ſhe has the choice of proceeding by the weſt Coaſt of PALAWAN; or, between that iſland and Borneo, through the SOOLOO SEAS.

The paſſage, by the weſt Coaſt of Palawan, has been ſucceſsfully made by ſeveral ſhips,

* See Enumeration of the Shoals in the China Sea, in latitude 6° 57′ North, and 6° 14′ North.

in

in the month of November, and when Mr. *Dalrymple* came down it, in December, he could with more facility have gone to the northward. But the many dangers, off this coaſt, have greatly alarmed ſome of thoſe who have gone that way; they have made a compariſon of it with the paſſage through the Straits of Macaſſar, between Borneo and Celebés, to which laſt they give the preference.

Ships, from Europe, ought, unqueſtionably, to prefer the STRAITS OF MACASSAR to the Coaſt of Palawan; but although ſhips have gone by theſe Straits in ſafety, all unfrequented navigations muſt be liable to danger; and the ſpace of unfrequented navigation, by the Straits of Macaſſar, is much greater than by the Coaſt of Palawan: at the ſame time, ſome ſhips have met with ſhoals in the Straits of Macaſſar. However, if I were, continues Mr. *Dalrymple*, paſſing to China by the weſt coaſt of Palawan, I would put into port, on the appearance of bad weather; but the common caſt of navigators will prefer to keep the open ſea, though ſurrounded with dangers, rather than to run in with the land, where they are not well acquainted; and indeed almoſt where they are.

The Paſſage along the eaſt Coaſt of Palawan does not appear impracticable, and therefore a ſhip, paſſing the Straits of Balabac, with ſoutherly winds, might, perhaps, do well to puſh with them up that coaſt, as the ſhorteſt track to the Coaſt of Luzon, which being reached, the Paſſage to China is ſecure: but the great objection to this attempt is, that the ſea, to the Eaſt of that iſland, is extremely full of dangerous ſhoals, very little known; and therefore, in caſe the winds ſhould take a ſhip ſhort, before getting up to the Cuyos, it would be very hazardous, without going back towards Balabac, to ſtand to the eaſtward, by which alone the paſſage could then be gained.

Suppoſing a ſhip paſt CAGAYAN-SOOLO; ſhe has three options, *viz.* going THROUGH THE PHILIPPINNES; BY THE NORTH, or BY THE SOUTH of Mindanao: this caſe comprehends alſo ſhip reaching SOOLOO, by the Straits of Macaſſar, late in the ſeaſon. "If I was at SOOLOO, under ſuch circumſtances," purſues Mr. *Dalrymple*, "I ſhould go to the northward, through the Philippinnes; or even to the northward of Mindanao, in preference to going on the South of that iſland."

A ſhip, having paſſed Cagayan-Sooloo, ſhould as ſoon as poſſible get over to the weſt Coaſt of MINDANAO, which is a bold ſhore; and, by keeping it cloſe aboard, there will be no current; the ſame object is to be purſued by ſhips going from Sooloo late in the ſeaſon, when the N. E. winds may be expected to prevail; ſuch ſhips ſhould paſs, by the aſſiſtance of the tides, to the eaſtward of *Peelas* (Palas): there is a very ſtrong current ſetting to the weſtward between Mindanao and NEGROS, which requires the utmoſt attention; for, till a ſhip has fetched under the lee of Negros, her paſſage through the Philipinnes is not aſſured; this makes it hazardous to puſh over directly for Negros after paſſing Cagayan-ſooloo, leſt the currents ſhould carry the ſhip to the weſtward amongſt the *Cagayanes*, which have many very dangerous ſhoals about them.

In caſe of meeting a fair ſpurt of ſoutherly wind, after getting ſight of Mindanao, you ought to make the moſt of it, and puſh directly for *Point Naſog*; after paſſing the latitude of 10° North

North. A ſhip may run through the *Cuyos*, or to the ſouthward of them, as may be moſt convenient.

But if the wind ſhould be baffling, or indeed, almoſt in any circumſtances, late in the ſeaſon, you muſt get over to the Coaſt of Negros, as ſoon as poſſible; and take care to keep the coaſts of that iſland, PANAY, MINDORO, and LUZON cloſe aboard, if the winds were northerly or eaſterly; but, after getting the length of Point Naſog, with a ſoutherly wind, you ought, as before mentioned, make the moſt of it, and get up with the north-weſt part of MINDORO, as ſoon as poſſible; or rather run up between TABLAS and the eaſt Coaſt of Mindoro, if the winds permitted, as that ſecures the paſſage to the Coaſt of Luzon, which a ſtrong N. E. * wind, or a calm, off the north-weſt point of Mindoro, where there are no ſoundings, might render hazardous, by forcing a ſhip from the land away to the weſtward; in the former caſe, a ſhip ſhould ſtand back to the S. E. under the lee of Mindoro; and not off to the N. W.

The great, indeed only, objection to the PASSAGE THROUGH THE PHILIPPINNES, is the danger of the Monſoon breaking up, whilſt amongſt the iſlands; for the places where a ſhip could take ſhelter are few, and not of eaſy acceſs to a ſtranger: but in caſe, by the time you get over to the Coaſt of Negros, the N. E. winds are ſet in, this objection will be removed.

By the N. E. winds being ſet in, it is not meant that, in the Sooloo Seas, the N. E. Monſoon is a freſh ſteady wind, blowing from that quarter for ſome months without intermiſſion; on the contrary, the winds from the northward never blow ſtrong in thoſe ſeas, for more than a few days at a time, when they are ſucceeded by light variable winds: and it is by taking advantage of theſe ſpurts of variable winds, that a judicious navigator makes the return of the northerly winds favourable to his purpoſe: " my experience," adds the author, " aſſures me that this is the caſe as late as the end of January towards Soolo; but I cannot preſume to ſay how far to the northward the circumſtances are the ſame, though I have reaſon to believe at leaſt as far as Manilla."

Along the ſouth Coaſt of Mindanao there being no dangers known, nothing farther need be ſaid concerning it, than that, by keeping in with the coaſt, you are likely to have land and ſea-breezes to aſſiſt you, in getting to the eaſtward; whereas, by ſtanding off, towards the SIAO Iſlands, you make the N. E. wind, which may be then expected to prevail, a foul inſtead of a fair wind.

Ships paſſing Mindanao, whether by the North, or by the South, ſhould get ſufficient eaſting, as ſoon as poſſible, to be aſſured of making FORMOSA, or at leaſt the NORTH BASHEES, to ſecure the paſſage to China; and be certain of being far enough Eaſt, before they increaſe their latitude ſo much as to loſe the *Bocadero* under their lee, which Paſſage they ſhould purſue in caſe of having the wind ſo much to the northward, as to endanger their being embayed, on the eaſt ſide of Luçon, to the northward of *Catanduanes*.

* Though I ſuſpect, ſays Mr. *Dalrymple*, in a note, the N. E. wind will be found much ſtronger, through the Gut between Tablas and Mindoro, than in any other part of theſe ſeas; which conſequently would be an obſtruction to the meaſure here recommended.



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Moſt of the ſhips which have gone to the Eaſt of Mindanao, have fallen in with iſlands, which are dangerous, being low land, without ſoundings, to denote your approach to them in the night: and the danger is the greater, as they lie in a ſea, ſubject to violent and uncertain currents. There are many more iſlands, than laid down in the draughts, but few of the ſhips, who have ſeen them, had any obſervations to regulate the longitudes.

In the Gut between the Philipinnes and Formoſa, gales of wind are very frequent at all ſeaſons.

It is immaterial, after getting into 20° North, in what latitude the Baſhees are paſſed, as there are no ſoundings around them: to the northward of *Bayat*, or *Orange Iſland* of the Bashees, there are four ſmall iſlands; the *Valentine*, 1764, paſſed in a clear channel, between the two northernmoſt and the two ſouthernmoſt; but they deſcribe rocks and breakers, between Bayat, and that next it; as well as in the channels, between the two ſouthernmoſt and between the two northernmoſt. There is nothing elſe amongſt the iſlands to be feared, unleſs what is above water, or very near ſhore; and the *Shoal to the weſtward of Fugu*. "Having been crippled in a gale of wind, in the *London*, we anchored on the 2d November, 1764, at the ſouth ſide of Fuga, under ſhelter of that iſland, where we lay till the 11th, put ourſelves a little to rights, and then proceeded for China, having almoſt a continued gale of wind, till we reached the coaſt on the 15th. *Muſa Bay*, at the weſt end of Fuga, is a place affording very good ſhelter and refreſhment, except water, which is remote from the ſhore: the iſland has many wild cattle and horſes, and plenty of guavos."

The Spaniards, at Manilla, have great apprehenſions of the *Franciſcan Moon* in October, and do not like to put to ſea, till after the full. The *Sabut-Jung* ſuffered very much by leaving Manilla in the beginning of October; and that navigation is then more dangerous than later, when the N. E. Monſoon is ſet in: after that, there is no difficulty of getting the Paſſage to China from Manilla, by keeping the weather-ſhore well aboard; and there is a current inſhore, ſetting to the northward, 20 miles or more *per* day.

"Notwithſtanding," concludes Mr. *Dalrymple*, "I have given a decided opinion againſt any eaſtern paſſage, for ſhips from India bound to China, in time of peace, it may indeed happen, that, by accidental delays, the China ſhips ſhall remain, on the Coromandel or Malabar Coaſts, ſo late as to find it impracticable to get into the Straits of Malacca, without ſtanding acroſs the Line, into ſouth latitude for the weſterly winds: in ſuch caſe it would be improper to think of paſſing through the Straits of Malacca, or by any Western Passage; in theſe circumſtances the only alternative is an Eastern, or a Pitt's Passage. It may therefore be proper to give an account of the Eaſtern Paſſages, and of the Pitt's Paſſage, for the information of thoſe who may, by any event, be obliged to go either way.

"I do not think a caſual ſhip from India ought to be diſpatched to China, after the end of November, from Bengal, or after the beginning of November, at the very lateſt, from the Malabar or Coromandel Coaſts; becauſe there is no probability of ſuch ſhip reaching China,

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China, in time to return to England by the ordinary paſſage, admitting, which is not probable, that there would be a cargo ready for ſuch caſual ſhip: a ſhip detained in India, from November to April, may be uſefully employed; and, ſailing in April, will arrive in China, in good time to be diſpatched to England, by the Pitt's Paſſage, ſhould there be any motives for ſending the ſhip home that way, in time of peace. But the ſhips of the ſeaſon deſtined for China, may by unforeſeen events be detained in India after November, when even the difference of a month or two, in their arrival in England, may become an object of the utmoſt conſequence.

"Ships from Bengal ought at all ſeaſons to paſs through the Straits of Malacca, in time of peace: from other parts of India, it is alſo eligible whilſt practicable.

"Ships, paſſing the Straits of Malacca any time in November, ought, in my opinion, to proceed towards Balambangan, and from thence, either by the weſt Coaſt of Palawan, or through the Soolo Seas, as may be found moſt convenient."

But in caſe ſhips, having paſſed the Straits of Malacca, either earlier or later than the end of November, ſhould find the north-eaſterly winds ſet in without the Straits of Sincapore, they ought to give up all thoughts of a Weſtern Paſſage, and take the advantage of the favourable wind to puſh over for Sooroot and Carimata with all expedition: and, giving Poolo Mankap a good birth; paſs along the ſouth of Borneo at a ſufficient diſtance to avoid the bank, which ſtretches along that coaſt, whereupon there appears to be ſome dangers; and, after paſſing Point Salatan, it is then to be conſidered, whether the ſeaſon be ſo far advanced as to make it neceſſary to proceed by the Pitt's Paſſage, or whether it is ſtill expedient to attempt the Straits of Macaſſar.

It muſt be obvious that, if the N. W. winds are not ſet in on the South of the Line, the Paſſage to the ſouth coaſt of Borneo is ſcarcely practicable againſt the S. E. winds, if they ſhould be found ſtill to prevail, and that the paſſage muſt be tedious, with the calms and light winds, which uſually precede the coming Monſoon in low latitudes, and therefore, with any wind but northerly, it will be proper for ſhips, got through the Straits of Malacca, to ſtand over towards Balambangan; ſuppoſing them too late for the *Funnel*.

But although a ſhip has found a favourable wind to carry her to Point Salatan and Poolo Laurot, or Poolo Laut; ſhe may find a ſoutherly or eaſterly wind in the Straits of Macaſſar, both which would be fair for ſtanding up theſe ſtraits, though the laſt a foul wind for the Pitt's Paſſage: in ſuch caſe you ought certainly make the attempt to get your paſſage by the Straits of Macaſſar, paſſing to the weſtward of the Paternoſters.

A ſhip, paſſed the Meridian of Poolo Laut, having a northerly wind, muſt proceed the PITT'S PASSAGE; it is impoſſible to ſay how late the Straits of Macaſſar may be paſſed: the *Ganges*, Captain *Dempſter*; *Earl Sandwich*, Captain *Wordſworth*; *London*, Captain *Eaſtbrooke*; and *Kent*, Captain *Tolme*, left Batavia for China the 5th December, 1783, all by the Straits of Macaſſar; they got ſight of Poolo Laut the 17th, loſt ſight of it the 19th; kept on the Borneo ſide, frequently anchored, and got through the Straits the 26th.

Taking their departure from the north-weſt point of CELEBE'S, they ſaw MINDANAO the 31ſt of December, and continued in ſight of it till the 2d of January, 1784; the ſame



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day had ſight of SANGIR, paſſed to the ſouthward of it the 4th, and loſt ſight of it the 5th; got ſight of JILOLO and MOROTAY the 7th, loſt ſight of it the 8th. The *London* ſaw the MEANGIS about 5° 20′ north latitude, and about 1° 37′ Eaſt from the north point of Morotay the 15th; the PALOS (Pelew) ISLANDS the 23d, which they left the 25th, making the center of them to be in 6° 51′ north latitude, and longitude, by lunar obſervation, 133° 20′ Eaſt. They ſaw the BASHEES and FORMOSA the 7th February, as did the *Kent*; loſt ſight of Formoſa the 9th, which the *Earl of Sandwich* alſo did on the ſame day; anchored in Macao Road the 14th; the *Earl of Sandwich* had anchored the 13th, and the *Ganges* the 6th.

Although ſhips appear to have made their paſſage in December by the Straits of Macaſſar, it is much to be queſtioned, if they would not have got to China, full as ſoon, by the Pitt's Paſſage, as by the rout they went; for the average of two ſhips leaving Batavia in November, (*Glatton* 1763, 67 days, and *Princeſs Auguſta* 1764, 55 days), is 59 days, and the *Ganges*, &c. 1783 and 84 by the Straits of Macaſſar were 69 days. The *True Briton*, alſo by the Straits of Macaſſar, from *North Watcher* 5 of November, 1784, was 74 days, and *Earl Mansfield* 1786, from *North Watcher* 1ſt of October 59 days: but the laſt ſhipwas rather too early for the PITT'S PASSAGE.

Every ſhip paſſing the Straits of Macaſſar, and able to reach the Coaſt of Mindanao in December, or later, ought to paſs to the weſtward of that iſland, and up through the Phillippines; becauſe they have then a probability of good weather, and the winds rather favourable than otherwiſe.

Ships going the Pitt's Paſſage in time of peace, when too late for the Straits of Malacca, may paſs through the Straits of Sunda, they may then paſs at option to the ſouthward or northward of the THOUSAND ISLANDS, keeping between 5° ¼ and 6° ſouth latitude till they make TANAKEKE′, in latitude 5° 30′ ſouth, 119° 34′ eaſt longitude from Greenwich.—They ſhould paſs through the STRAITS OF SALEYER, in longitude about 120° ½ eaſt, and without BOOTON, particularly attending to keep in with the eaſt coaſt of that iſland, to prevent falling to leeward of BOORO: the track from Booton is to the North of BOORO and South of XULLABESSI, (*Shoolla-beſſi*), between OOBY on the North and CERAM on the South; and laſtly, between POPA on the North and MESSOOL (Myſol) on the South; whilſt theſe are ſtill viſible, the lands which make the Pitt's Straits will be in ſight: there is a variety of opinions concerning which Straits are moſt eligible, the PITT'S or DAMPIERS; the argument in favour of Dampier's Straits is, that they have ſoundings *: but on the other hand theſe ſoundings do not extend through the whole of the Straits, and there are places in the Pitt's Straits where a ſhip might anchor to ſtop a tide, in caſe of neceſſity; but with good luck and taking the firſt of the tide, a ſhip may get through in one tide by the Pitt's Straits, which does not appear poſſibly by Dampier's.

" Although I have ſaid," adds Mr. *Dalrymple*, " ſhips, bound an Eaſtern or Pitt's

* Mr. *Robertſon* adds, that a ſhip is not ſo liable to be hampered in with the Coaſt of New Guinea, when clear of them, as it is the caſe with thoſe who come by Pitt's Straits.

Paſſage

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Paſſage from the Straits of Sunda, ſhould keep between $5\frac{1}{2}$ and 6° ſouth latitude till they make Tanakeké; I muſt not be underſtood to mean, that thoſe limits are abſolutely neceſſary, in caſe the winds ſhould happen to be more favourable for making eaſting, by going under that latitude; but if the true N. W. Monſoon be ſet in, the courſe will be optional, and I think about 5° $\frac{1}{4}$ to 5° $\frac{1}{2}$ South will be the beſt latitude to run down in, till you ſee SALOMBO, i. e. *Noeſa Loombo* or *Cattle Iſland:* it abounding with wild cattle. Captain *Wilſon's* Memorandum ſays, the latitude of the hummock on it is 5° 33′ South, which is exactly the mean of nine ſhips."

Some ſhips have gone to the northward of the *Two Salombo Iſlands*, and ſome to the ſouthward; Captain *Wilſon's* notes ſay, there is a rock S. 37° W. from the weſternmoſt part of the *South Salombo*; but he gives no diſtance.

After paſſing Salombo, it is beſt not to exceed 5° $\frac{3}{4}$ ſouth latitude, till you make Tanakeké, as the *Revenge* was on the 5 *Fathoms Bank* in 5° 53′ South, and the *Glatton* in the ſame latitude on a bank, which they ſuppoſed to be the *Brill Bank:* by getting under $5\frac{1}{2}$, ſhips will have ſoundings on the foul ground, off the iſlands which lie to the weſtward of Tanakeké: but when they get ſight of this laſt iſland, they muſt be attentive to their lead, ſo as to keep towards the outer edge of the bank to the ſouthward of it.

When a ſhip is paſſed Tanakeké ſhe has the lands for a guide, all the way through the Pitt's Paſſage. The only dangers known in it are

Bank of rocky ground 4 fathoms, about a mile broad, on that part where the *Groſvenor* went over. They anchored on it at 8 P. M. 31ſt January, 1763.

9th February, 1763. Shoal of 9 feet rocks and ſand, on which the boat was, from no ground at 60; the bearings in the ſhip after tacking, on ſeeing the rocks from maſt head, were

CUMBERLAND ISLAND, i. e. Way-gee-ooe, E. by N. $\frac{1}{2}$ N. to W. $\frac{1}{2}$ S. about 3 or 4 leagues.

A ſmall iſland off ditto E. by N.

The North end of King George's Iſland E. by S. $\frac{1}{4}$ S.

The body of the rocks N. E. $\frac{1}{4}$ N. diſtance about 3 miles.

Beſides theſe may be mentioned the Foul ground, probably very dangerous, that lies to the eaſtward of the eaſt point of Batanta, which forms the Pitt's Straits on the North; the extent of this danger is not well aſcertained,

INSTRUCTIONS

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# INSTRUCTIONS FOR SAILING FROM THE STRAITS OF SALEYER THROUGH PITT'S STRAITS, AND THE EASTERN PASSAGE, TO CHINA.—PELEW ISLANDS.

From Mr. ROBERTSON's Memoir, 1791, &c.

THE STRAITS OF SALEYER are formed by the north point of the island of the same name, and the south-east point of Celebés. Between these two points are three small islands in general named, *North* (St. Andrew's), *Middle* (St. George's), and *South* (St. Patrick's) islands. Middle island is the smallest, and the passage is of either side of it; that to the southward is esteemed the best, but both are equally safe; between South island and Saleyer is a wide space, but no passage for ships.

SALEYER ISLAND, where the Dutch have a small settlement, is of a moderate height; its north end at a distance appears like a small island, both to the eastward or westward of it. To the westward of *Hog Island*, near Seleyer, is a dangerous shoal with only 2 fathoms, sharp rocks upon it; it runs North and South a cable's length, and East and West * $\frac{1}{4}$ mile.

In coming from the southward and westward, St. Andrew's, or North island is not easily discovered on account of the south-east point of Celebés projecting beyond it in that point of view. When you get to the eastward of it, the passage opens, and appears as wide as any of the others; but it is not supposed to be safe: the only danger hereabout is the Hotland's Rudson.

Your course, after having passed the Straits of Saleyer, is E. $\frac{1}{2}$ S. it will carry you clear of CAMBYNA, or *Cambona*, which is a very high island, 30 leagues to the eastward of Middle Island, and having a peak whose summit rises up above the clouds. The same course will bring you to pass, at a proper distance, South island in the entrance of the Straits of Booton, and also the south-east point of Booton.

SOUTH ISLAND is not easily distinguished when you come from the westward, and appears as part of Booton till it bears about North; then it opens, and shews a passage between them. In this track the Booton shore is to be kept close on board, until past the islands of *Tookan-Bessies*, which are very dangerous.

The latitude of South island is 5° 46′ South; HAGEDIS and South islands lie from each other North and South, and were found by chronometer in 123° east longitude from London.

The north point of Booton is in latitude 4° 25′ South; and to the northward of it lies WEYWONGY, a high island whose south part forms the north entrance of *Booton Straits*.—The passage through those Straits has been entirely disused†, since they have found, that on the outside of the island, the course is equally safe and much shorter.

* The *Princess Augusta*, which was near being on that shoal, calls it *Hotland's Rudson*; it is perhaps the same with that named *The Whale* in several Dutch Charts.

† M. *De Bougainville* passed through these Straits in September 1768, coming from the northward, and describes the passage as follows:

In

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In ſtretching over from Weywongy to gain the paſſage between the *Xullas* (SHOOLLAS), and the north part of Booro, the greateſt care is requiſite to avoid falling to leeward; this has ſometimes happened from inattention to the ſtrong ſoutherly currents which at this ſeaſon (December) run from 20 to 25 miles *per* day. It would therefore be adviſable, after leaving Weywongy, to make every effort to gain northing, ſo as to fetch SHOOLLA-BESSY, whoſe ſouth point lies in 2° 28′ latitude South. Between it and BOORO, whoſe north-weſt

" When you come from the northward, it does not begin to open till you are within a mile of it. The firſt object which ſtrikes one, on the ſide of Booton, is a detached rock, hollow below, repreſenting exactly the figure of a galley with her awning ſpread, half of which out of water is carried away; the buſhes which cover it ſeem to form the tent, or awning; at low water this galley joins to the bay; at high water, it is a little iſland. The land of *Booton*, which is tolerably high in this part, is covered with houſes, and the ſea-ſhore full of encloſures for catching fiſh in. The other ſhore of the paſſage is perpendicular; its point is diſtinguiſhed by two ſections, which form as it were two ſtories in the rock. After paſſing the galley the lands on both ſides are quite ſteep, and in ſome parts even hang over the channel. One would think that the god of the ſea has opened a paſſage here for his ſwelled waters, by a ſtroke of his trident. However the aſpect of the coaſt is charming; that of Booton is cultivated, riſes like an amphitheatre, and every where full of habitations, unleſs in ſuch places, which by their ſteepneſs exclude men from coming at them. The Coaſt of *Pangaſani* (on the weſt ſide) which is ſcarce any thing but one ſolid rock, is however covered with trees, but there appear only 2 or 3 habitations in it.

" About 1½ mile to the northward of the paſſage, nearer Booton than Pangaſani, we find 20, 18, 15, 12, and 10 fathoms water, oozy bottom; as we advance to the ſouthward in the channel, the bottom changes: there is ſand and coral at different depths, from 35 to 12 fathoms, and after that no ground.

" The Paſſage is about ⅓ a league long; its breadth varies from about 150 to 400 toiſes (of 6 feet French meaſure each) as we judged from appearance. The channel goes winding, and on the ſide of Pangaſani, for at about ⅔ of its length, there is a fiſhery which muſt be conſidered as a mark to avoid this ſhore, and range that of Booton. In general it is neceſſary, as much as poſſible, to keep the middle of the gut. It is likewiſe fit, unleſs you have a briſk and favourable wind, to have your boats a-head, in order to ſteer well in the ſinuoſities of the channel. The current, upon the whole, is ſtrong enough to carry you paſt in a calm, and even when there is a light contrary wind; but it is not ſufficient to overcome a briſk head-wind, and to permit your paſſing the channel, making ſhort boards under top-ſails. When you come out of the gullet, the land of Booton, ſeveral iſles to the S. W. of it, and the lands of Pangaſani look as the entrance of a great gulf. The beſt anchorage there is oppoſite the Dutch ſettlement about a mile off ſhore.—This ſtation is compoſed of 7 or 8 bamboo huts with a kind of palliſadoes, decorated by the pole of a tent. There a ſerjeant and three men reſide for the company.

" A freſh and pretty ſtrong breeze at S. E. took us as we made a board upon an iſle to the Weſt of Booton; it permitted us to ſteer W. S. W. and made us gain a good way againſt the tide. I muſt here obſerve that one muſt take heed of a bank, which runs pretty far out to ſea from the iſle of which I have juſt ſpoken. As we plied in the morning, we ſounded ſeveral times, without finding bottom, with 50 fathoms line.

" At noon we obſerved in 5° 31′ 30″ ſouth latitude—At 3 o'clock we perceived the ſouth extremity of Pangaſani. We had ever ſince this morning ſeen the high mountains of Cambona—about ½ an hour after 4 we diſcovered a part of the land of Celebés. We hoiſted in our boats at ſun ſetting, and ſet all ſails, ſteering W. S. W. till 10 o'clock in the evening, when we ſtood W. by S. and continued this courſe all night with ſtudding-ſails ſet a-low and a-loft."

" My intention was to fall in with the iſland of *Saleyer* 3 or 4 leagues from its north point, that is in 5° 55′ 06″ of latitude, in order afterwards to go in ſearch of the ſtraits of the ſame name, between this iſle and that of Celebés, along which you ſail without ſeeing it, as its coaſt, almoſt from Pangaſani, forms a gulf of immenſe depth. It is likewiſe neceſſary to return in ſearch of the Straits of Saleyer when you paſs through the *Tookan-beſſies*.

" From the above details, it muſt certainly be concluded, that courſe through the *Straits of Booton* is in every reſpect preferable. It is one of the ſafeſt and moſt agreeable navigations that can be made; it joins all the advantages of the beſt harbour to excellent anchorage, and to the pleaſure of making way at one's eaſe. We had now as great an abundance of freſh proviſions on board our ſhip, as there had been want before."

Theſe proviſions, ſays M. *De Bougainville*, in another part, were ſold at a low rate, chiefly poultry, eggs, and fruit; but he adviſes thoſe who paſs this way, to provide themſelves, if they can, with the coin which the Dutch make uſe of in the Moluccas; and eſpecially with the plated; the value of which is 2½ French ſous. As the Indians did not know the coin which the French had, they did not value the Spaniſh reals, nor the French pieces of 12 and 24 ſous; and often refuſed to take them.

point

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point is in latitude 3° 7′ South, the paſſage is 15 miles wide: and the high land of Booro, which appears like a dome, may be ſeen at 15 leagues diſtance.

We muſt repeat in this place, that through the Pitt's Paſſage the land is ſeen on both ſides. The beſt track is to keep the ſmall northern iſlands cloſe on board all the way, till you come in ſight of Batenta and Salywatty iſlands, when you can enter either Pitt's or Dampier's Straits.

From the ſouth point of *Sboolla-Beſſy* GOMONO iſland bears N. 70° E. 34 leagues. To prevent falling to leeward between theſe points, a N. E. by E. courſe ought to be ſteered, which will bring you in ſight of the weſt end of OOBY MAJOR.

From Gomono to POOLO PESANG the courſe is E. N. E. diſtance 26 leagues. Between them are ſeveral ſmall iſlands lying much in the ſame direction; all theſe may be paſſed very cloſe, and there are no ſoundings in this track. Poolo Peſang is a ſmall iſland with two hummocks, in latitude 1° 24′ South.

Poolo PESANG and POOLO POPO bear of each other N. 72° E. and S. 72° W. diſtance 17 leagues. A cluſter of iſlands between them named *Boo* or *Eſplie*, lie neareſt to Popo, and nearly in the ſame parallel. The ſouth ſide of Popo is ſurrounded with a number of iſlands; it has two remarkable hills on the weſtern part, which may be ſeen a great way; the eaſtern part being entirely flat. The mouth of the Pitt's Straits is due Eaſt of this iſland 20 leagues, and Cape Mabo the eaſtern part of Batanta bears N. 69° E. from it, diſtance about 23 leagues*.

The weſt point of Popo and MYSOL bear North and South from each other. At this place the Pitt's Paſſage is the narroweſt, being only 8 or 9 leagues wide between Popo and the *Kanary Iſlands*. Theſe are 7 or 8 in number, and lie to the northward of Myſol; the largeſt of them in latitude 1° 44′ South. Captain *Forreſt* found there a good ſhelter, which he has named *Round Harbour*.

Being to the eaſtward of Poolo Popo, you immediately perceive the high land of Batenta and Salywatty. Between theſe two iſlands are the PITT'S STRAITS, (ſo named by Captain *James Dewar* in 1760), and called *Sagewin's Straits* by the Dutch. Their ſhores are ſteep, and the tides remarkably rapid, attended with ſtrong eddies, which render them at all times very dangerous, eſpecially if it ſhould happen to fall calm.

DAMPIER'S STRAITS take their name from the celebrated *Dampier*, the firſt of our countrymen who explored them; they lie to the northward of Pitt's Straits, and between the iſlands of Batenta and Waygeeo; the Dutch call them *Gamen Straits*. From *Cape Mabo*, the weſternmoſt point of Batenta to *Point Pigot*, on the ſouth-eaſternmoſt part of Waygeeo, the diſtance is 23 leagues. There are no ſoundings in this paſſage to the eaſtward of *Foul Iſland*, nor any danger whatever, which gives it the ſuperiority over Pitt's Straits; but ſee at the end of the preceding ſection the reſpective advantages and inconveniences of both Straits.

To the ſouth-eaſtward of Pitt's Straits 13 or 14 leagues, lie the STRAITS OF GALEWO,

* The Dutch Charts give the bearing of Pitt's Straits E. N. E. from Popo Iſland; and make the diſtance between the ſame iſland and Cape Mabo only 15 or 16 leagues.

between

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between Saliwatty island and the western Coast of NEW GUINEA; they are called likewise REVENGE's, or WATSON's STRAITS, Captain *Watson* of the *Revenge* being the first Englishman who went through them outward-bound in 1764. They are narrower at the entrance, and afterwards more intricate and difficult than the two others; they open as well as them into that narrow sea, between New Guinea and Waygeeo Island, known by the name of the STRAITS OF NEW GUINEA; these are about 12 or 13 leagues wide, and communicate with the Great Pacific Ocean.

"By whatever passage or Straits," says Mr. *Robertson*, "the Pacific Ocean is entered, the first grand point necessary is to gain sufficient easting, while in a low latitude, to enable you to weather the north Coast of *Luconia* with the north-easterly wind.

"The very great uncertainty and violence of the westerly currents in this part of the Pacific Ocean, and the number of small half-drowned islands dispersed over it, render the navigation thereof extremely dangerous, and makes it hard to determine what the exact quantity of easting should be, as some ships have weathered Luconia with much less than others.

"In my opinion all ships coming from Pitt's, Dampier's, or Watson's Straits, ought to pass, if possible, by the Macassar Straits, and Sangir Passage, after leaving the North Cape of *Morotay*, (Morinty, or Morty), should stand to the eastward sufficiently, to enable them to get sight of the southernmost *Pelew Islands*; which, in that case, they must pass to the westward."

THE PELEW ISLANDS, known long ago to the Spaniards by the name of ISLES PALAOS, are a very narrow cluster of small and numerous islands, stretching about 28 leagues in length N. N. E. and S. S. W. their west side is circled with a coral reef which in some places extends 5 leagues from the shore. The northernmost of them lies in 8° 12′, and the southernmost in 6° 54′ north latitude. It appears that the dangers bounding those islands to the northward extend up to 8° 23′ latitude North. The Pelew islands are inhabited; the longitude of their centre, by lunar observations on board the *London*, 1783, is 133° 35′ East of London.

About 45 leagues to the North of the Pelew islands are the MATELOTAS islands, from whence to Luconia no other land or danger is known; these were so named by the *Warwick*, in 1761, going to China, and are described in the following

## EXTRACT OF THE JOURNAL OF THE DUCKINGFIELD HALL, CAPTAIN MORINO, OFF THE MATELOTAS ISLANDS.

"JANUARY 3d, 1798. At ½ past 1 A. M. discovered two small islands on the lee beam, bearing N. by W. ½ W. sounded, ground 25 fathoms, coral rock; hauled our wind immediately, and lay up S. by W. latitude per account 8° 25′ N. longitude per chronometer 137° 43′ E. soundings from 21 to 22 fathoms. At 3 A. M. saw another small island, with a light on it, right a-head. Tacked and lay up N. E. by E. but the current

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running ſtrong to leeward, could not weather the iſlands we firſt made. At 7 A. M. the current changed in our favour, with very ſtrong riplings; at day-light tacked; ſounded as before; except twice, deepened a caſt to 35 fathoms. Theſe iſlands have very dangerous reefs, ſtretching from iſland to iſland: at ½ paſt 7 A. M. the ſouthernmoſt iſland S. 10° W. the northernmoſt N. 10° E. the north-weſt iſland W. S. W. ½ W. we ſhoaled our water from 20 to 11 fathoms, then 5 fathoms next caſt. Tacked, and ſtood to the N. N. E. immediately deepened our water to 24 fathoms: we afterwards paſſed on two ſmall ſpots, not much longer than the ſhip, with not leſs than 5 fathoms on them, and could perceive from the maſt-head two others, but ſuppoſe there was water over them, as we could ſee the bottom in 20 fathoms. At ½ paſt 11 doubled the ſouthernmoſt iſland, about 3 miles to the N. E. it appeared bold to on the ſouth end: a reef runs off the northernmoſt iſland, 3 miles to the N. E. About ½ mile farther is a bank of breakers, with apparent deep water round them. At noon the South iſland bore North, the body of the next to it N. N. W. and a third N. 31° W. diſtant from the ſouthernmoſt one about 3 or 4 miles,

Latitude obſerved 8° 15′ 31″ North.
Longitude 137 44 15 East.

" Many of the natives came along ſide in canoes, offering their cocoa-nuts, ſmoaked fiſh, and a number of noddies, and ſome pieces of cloth of their own manufacture, in exchange for pieces of iron hoops, or in ſhort any thing we would offer. They appeared a very inoffenſive people, well made and handſome featured, ſome were tattoed all over the body.

" How far the reefs may extend to the weſtward I cannot pretend to ſay, but they ſtretched farther than we could ſee on a clear day: the diſtance from the northernmoſt to the ſouthernmoſt iſland is about 6 leagues.

" *N. B.* The above account very nearly correſponds with that of Lieutenant *King* of the *Glouceſter* tranſport in 1796, excepting the diſtance of the northernmoſt and ſouthernmoſt iſles. The latter eſtimating it at 12 leagues, and that of the two northernmoſt detached from the others, at 5 or 6 leagues: he imagined they had a ſtrong weſterly current, but found none by chronometer."

Lieutenant *King*'s latitude 8° 17′ 0 North.
Longitude { per chronometer 137 47 30 } East.
{ from ☉ ☾ 138 11 }

INSTRUCTIONS

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# INSTRUCTIONS FOR SAILING FROM BATAVIA THROUGH THE STRAITS OF SALEYER TO PITT'S STRAITS, AND DAMPIER'S STRAITS.

By M. HORSBROUGH.

"IN the N. W. Monſoon, which prevails in November, December, January, and February, from Batavia to the Moreſſes there is an eaſterly current, ſometimes inclining a little to the northward, at others to the ſouthward, and ſeldom exceeding 15 per day. In December and January, the ſqualls from the Weſt and N. W. are very heavy at times, and the weather in theſe months is often cloudy, with much rain: about the Moreſſes the current was found in the *Anna* ſetting to the ſouthward in January; after entering the Straits of Macaſſar it runs ſtrong to the S. S. W. part of that month, and all February, ſlacking the beginning of March, and this is uſual here.

"If a ſhip does not leave or paſs Batavia before the beginning or middle of January, it is beſt to go through the *Straits of Saleyer*, and from thence through thoſe of *Pitt* and *Dampier*, by which you will enter the Pacific Ocean, when ſtill in a ſouth latitude, and in the track of the N. W. winds.

"Leaving Batavia, bound through the Straits of Saleyer in the N. W. Monſoon, when clear of Edam, ſhape a courſe to paſs on the North ſide of Carimon Java, which bears from Edam nearly due Eaſt 72 leagues: this courſe will carry you clear of Bumkin Iſland, which lies in 5° 52′ South, and about 40 leagues to the eaſtward of Edam. There is a ſhoal 2 or 3 leagues to the northward of the former iſland, on which the ſea ſometimes breaks, and on account of this ſhoal it is neceſſary to ſteer a little to the northward till paſt it. You muſt then ſee Carimon Java if by day; but ſhould you paſs it in the night, give it a good birth to the ſouthward of it, as there are ſeveral iſlands near it, one of which lies to the W. N. W. of it nearly 3 leagues. The *Anna* paſſed to the northward of Carimon Java, and the iſland to the weſtward of it, at 7 leagues diſtance, in 32 fathoms.

"After leaving Edam, if you increaſe your depth of water to 25 fathoms, you will paſs Bumkin Iſland at a reaſonable diſtance. *Carimon Java* lies in 5° 50′ South, and 110° 36′ Eaſt; a flat iſland to the weſtward of it in 110° 28′. CARIMON JAVA is high, with a peaked hill in the middle. *Lubec*, or *Luboc*, bears nearly due Eaſt from Carimon Java 44 leagues; its latitude is 5° 49′ South, longitude 112° 50′ Eaſt. It is high and of good extent; the eaſt end ought not to be approached, on account of the *Oſterly's Banks*, lying 2 or 3 leagues off it. The *Anna* paſſed Lubec on the north ſide at 8 or 9 leagues diſtance: 32 or 33 fathoms are a good track.

"After paſſing Lubec ſteer to paſs on the ſouth ſide of GREAT SOLOMBO, which bears from Lubec North 81° Eaſt 33 leagues; lying in 5° 33′ South, and 114° 28′ Eaſt; it is low at each end, with a hill in the middle that may be ſeen from the deck at 7 or 8 leagues diſtance. Lubec being paſſed to the northward at 7 leagues, an E. S. E. courſe, if no current, will carry a ſhip about 5 leagues to the ſouthward of the Great Solombo, in 32 to 36 fathoms; but near Solombo the depth diminiſhes, and you have only 20 or 21, 7 or



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8 leagues to the S. E. of it. This iſland together with Little Salombo (which lies about 5 leagues to the northward of it) is entirely free from danger.

" The BRILL bears from the Great Salombo S. 84° E. 91 leagues; when to the eaſtward of Salombo it will be beſt to keep nearly in its parallel, *viz.* 5° 30′ South, till you have run 50 or 55 leagues to the eaſtward of it: you ought then to ſteer as you intend to paſs to the northward or the ſouthward of the Brill; the beſt paſſage is thought to be to the northward, eſpecially with a N. W. wind, as you ſee the ſouth-weſt end of Celebes from the ſhoal in clear weather, and the Iſland *Tanakeka* lying to the northward of it, is a good mark to know when you have paſſed the Brill, but in going to the ſouthward of it the land is not ſeen, and conſequently no mark to guide you; if you paſs that way, the latitude of 6° 16′ muſt not be exceeded, on account of the *Poſtillions*, the northernmoſt of which is about 11′ to the weſtward of the Brill. A Bank ſurrounds theſe iſlands, extending ſeveral leagues to the northward, the northern extremity about the Poſtillions in 6° 25′ South, ſo that a ſhip by keeping in 6° 16′ will paſs about mid-channel between them and the Brill: but running here in the night, great care is requiſite, as to the latitude. Having run 50 or 55 leagues, in a parallel from Great Salombo, if you intend to paſs to the ſouthward of the Brill without ſeeing it, you ſhould keep a little ſoutherly to increaſe your latitude to 6° 16′ South before you approach it. This will carry you 11′ to the ſouthward of the ſouth point of the ſhoal, which lies in 6° 5′, and 119° 00′ Eaſt. If on the contrary you go to the northward of it, 5° 45′ or 50′ is the beſt track, the north point of the ſhoal being in about 6° 00′. Its extent from Eaſt to Weſt as we judged from the *Anna's* maſt-head is 4 or 5 miles. The *Brill* is the more dangerous, as it lies nearly mid-channel between the Poſtillions and Tanakeka: there is a regular break round the verge of it, and inſide the break the water appears of a greener colour than common; an Indiaman's boat ſounded 2 feet on it in ſome places, and found the bottom ſandy; it is believed to be ſteep to; when any ſea happens, the break will be no bad guide againſt it in the day-time. In paſſing to the northward of the Brill, you may have ſoundings on the ſouth end of *Deſeres* Bank, which extends to 5° 48′ or 49′ South, and about 20 leagues to the weſtward. The South part of this bank is by all accounts free from danger, but the ſoundings are in ſome places irregular, the depth 6 or 8 fathoms. This Bank is of great extent, and has ſeveral ſmall iſlands on the north part of it.

" The Iſland of TANAKEKA, lies at a ſmall diſtance from the ſouth-weſt part of Celebes in 5° 31′ South, and there is good anchoring ground between them; due Weſt 34′ from this iſland is a ſmall iſland; 10′ farther another, and from this laſt in a northern direction lies a third ſmall iſland: there is a dangerous ſhoal which ſurrounds the two weſternmoſt, and projects ſeveral miles to the ſouthward of the ſouth-weſt one, trenching to the eaſtward till near the eaſternmoſt; on this ſhoal the *Swallow* Captain Carteret was in 3 fathoms, coral rocks. Coming from Salombo you muſt be careful not to keep more northerly than 5° 40′ South. In paſſing this ſhoal, the ſouthernmoſt iſland lying in 5° 31′, and the ſhoal extending ſeveral miles to the ſouthward of the ſouth-weſternmoſt, which bears from Tanakeka Weſt 14½ leagues.

" *Middle*

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" *Middle Iſland*, in the Straits of Saleyer, bears from the Brill N. 75° E. 30 leagues. When paſt the Brill it is beſt to haul in near Celebés, where you will have ſoundings from Tanakeka to the eaſtern part of Bonthain Bay; keep at what diſtance you pleaſe from Celebés till you get Bonthain hill (which is very conſpicuous, running at the top to a peak, and ſtanding near the ſea at the bottom of the bay) to bear about N. N. E. then you muſt haul well into the bay within the ſhoal, on which the *Mansfield* had $3\frac{3}{4}$ fathoms, coral rocks, Bonthain hill bearing N. $\frac{1}{2}$ E. diſtance off the Celebés ſhore $4\frac{1}{2}$ leagues. It is requiſite to avoid this ſhoal to keep within 2 or 3 leagues of the ſhore, where you have good anchorage and no danger, when the hill bears N. $\frac{1}{2}$ W. ſteer for Middle Iſland, in the Straits of Saleyer. If you paſs to the ſouthward of the Mansfield Shoal you muſt keep 7 or 8 leagues off the Celebés ſhore; when the hill bears N. by E. which will be ſeen from the deck at that diſtance in a clear day; but in thick weather 5° 52′ will be the ſafeſt guide till within 5 leagues of Saleyer, when you muſt haul to the N. E. for Middle Iſland, from which the ſhoal bears nearly Weſt about 7 leagues.

" The STRAITS OF SALEYER are formed by the ſouth end of Celebés and the north point of Saleyer; between theſe lie three iſlands, called *North*, (or *St. Andrew's*) *Middle*, (or *St. George's)* and *South*, (or *St. Patrick's)* Iſlands. Middle Iſland is the ſmalleſt, and the paſſage is on either ſide of it: the channel between Middle and South Iſlands is about 4 miles wide, and that between North and Middle iſlands about 3: both are ſafe, but the wideſt is preferable, as there are no ſoundings in either. A Dutch officer of Batavia, who had ſurveyed theſe iſlands, ſays there is no paſſage between North iſland and Celebés, nor between South Iſland and Saleyer, and a Dutch ſhip was loſt in attempting the latter, coming from the S. W. North Iſland is ſhut in with Celebés, but when to the eaſtward a wide ſpace opens between them: you may ſee theſe iſlands, though they are rather low, from the deck at the diſtance of 4 or 5 leagues. The north part of Saleyer, which appears an iſland both to the eaſtward and weſtward is a little higher, and joined by a neck of low land to the ſouthern part; its north extremity lies in 5° 50′ South. The ſouth part of Celebés oppoſite Saleyer is moderately high, and very woody: in Bonthain Bay the land is low near the ſea, but inland to the N. W. it is remarkably high, and may be ſeen in a clear day 30 leagues off. The *Anna's* run to the weſtward meaſured 64 miles geometrically, and at that diſtance it ſeemed very little deepened. Saleyer is a high bold land, except as we have ſaid at the north end, where it falls rather low, at a ſmall diſtance off the weſt ſide of it lies

" *Perkins* or *Hog* Iſland, running nearly in the ſame direction as Saleyer, and very cloſe to it. On the weſt ſide of Hog Iſland is a ſhoal called by the Dutch *Holland Ruſten* Shoal: the *Princeſs Auguſta* anchored on the verge of it in 28 fathoms, in the night; there are only 2 fathoms, ſharp rocks, on it in ſome places; its leaſt extent is from North to South a cable's length, and the greateſt from Eaſt to Weſt a $\frac{1}{4}$ of a mile: the ſouth part of Saleyer on with Hog Iſland, bears from this reef S. by E. and the north end of Saleyer N. N. E. diſtance off Hog Iſland above 5 miles. Middle Iſland lies in 5° 40′ ſouth latitude, and 120° 28′ longitude Eaſt.

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" The ſouth point of BOUTON, bears from Middle Iſland E. 2° S. but the beſt courſe to ſteer is E. ¼ S. which, if no current, will carry you at a reaſonable diſtance from *Cabina*, or *Cambayna* Iſland, and alſo paſt South Iſland at a deſirable diſtance. Cambayna is high; the ſouth end of it in 5° 30′ South; the peak in the body of it about 5° 20′, and 1° 33′ Eaſt of Middle Iſland, from which alſo the South Iſland near Bouton lies 2° 4′ Eaſt, and the ſouth point of Bouton 2° 16′. There are two ſmall iſlands off the ſouth end of Cambayna, the ſouthernmoſt of which, called *South Iſland*, bears nearly Weſt from the ſouth point of Bouton 12 miles; it is middling high, but being on with the ſouth part of Bouton in coming from the weſtward, it is not perceived to be an iſland till near it; it lies in 5° 43′ South, and 122° 32′ Eaſt. *Hagedis* is in 6° 13′ South, and 122° 42′ Eaſt, being nearly South of the ſouth end of Bouton. This iſland is ſmall, but moderately high. The ſouth point of Bouton lies in 5° 42′ South, and 122° 44′ Eaſt, which is more northerly than it is laid down in the beſt charts; it is very high and woody, with many lights on it in the night; it is alſo ſteep-to, having no ſoundings till near it.

" After having reached the ſouth end of Bouton, you ſhould keep the ſhore on board to avoid the *Toocan Beſſy* Iſlands and Shoals, and you may coaſt Bouton here at 3 or 4 miles to as many leagues off ſhore. The northernmoſt large Toocan Beſſy Iſland bears due Eaſt from the eaſt end of Bouton: when paſt that end of Bouton, there is a deep bay or opening about 9 leagues in extent, the points of which Bay bear N. by W. and S. by E. of each other; you need not ſteer into the bay, but ſtand right to the northward for the north point of it, which is low, and runs level for a great diſtance near the ſea; you may then keep on to the northward along the ſhore as far as *Waxway*. The eaſt end of Bouton lies in 5° 15′ South, and 123° 15′ Eaſt.

" The Shoals of TOOCAN BESSY are ſaid to be a cluſter very dangerous, with a number of iſlands on them; the neareſt of them which is oppoſite the eaſt end of Bouton, appears to be the largeſt and higheſt, and may be ſeen from a ſhip's deck 6 or 7 leagues; it lies in 5° 15′ South, and 123° 33′ Eaſt, which is 6 leagues from the eaſt end of Bouton. Theſe iſlands muſt be allowed a good birth in paſſing, as the ſhoals are ſaid to extend a conſiderable diſtance without them.

" WEYWONGY, or *Wavony*, is a high iſland lying to the northward of Bouton, the body of it is placed in 4° 3′ South, and the north end of Bouton in 4° 25′ South, between which lies the north entrance of the Straits of Bouton. A ſhip ſhould keep on to the northward till paſt Weywongy; from thence ſhe may ſteer over for the ſouth end of *Xulla Beſſy*, (*Shoolla Beſſy*) but great care muſt be taken not to fall to leeward. The current often ſetting in the N. W. Monſoon at the rate of 20′ to 25′ *per* day to the ſouthward, and the prevailing wind will from the northward make it neceſſary to keep on the northern ſide of the paſſage all along the Pitt's Paſſage.

" The ſouth point of Xulla Beſſy, lies in 2° 28′ ſouth latitude, and 125° 58′ eaſt longitude: it is moderately high and level. The north-weſt end of the Iſland Bouro bears from the ſouth point of Xulla Beſſy S. 2° W. 14 leagues: it lies in 3° 6′ South, and 125° 56′ Eaſt, the diſtance between them being the breadth of the channel. *Bouro* is all high

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high land, the north-weſt end the higheſt, and has a mountain on it reſembling a dome, that may be ſeen 20 to 25 leagues off: the north-eaſt part of Bouro, which is on the north ſide of the harbour, is in 126° 58′ Eaſt. From the ſouth point of Xulla Beſſy

" GOMONA bears N. 70° E. 34 leagues: to prevent falling to leeward a N. E. by E. courſe ſhould be ſteered, which will bring you in ſight of the weſt end of *Oby Major*, which is a high iſland. Gomona lies in 1° 55′ South, and 127° 36′ Eaſt.

" From Gomona to POOLO PESANG the courſe is E. N. E. 26 leagues: there are ſeveral ſmall iſlands lying between them, all of which may be paſſed near. The firſt is *Poolo Gaſſes*, which lies about 14 leagues E. N. E. of Gomona, and is rather low and flat; next are three ſmall iſlands, the two largeſt called *Kekik* and *Lawn*. Lawn is the eaſternmoſt, and lies W. by S. 3½ or 4 leagues from Peſang; Kekik is to the weſtward, about 6 miles from Lawn: the other iſland is between them, but its name is not known; all theſe iſlands are ſmall but high.

" BONOA, which lies at a ſmall diſtance from the north-weſt end of Ceram, is a high rugged iſland, in 2° 53′ South, and 127° 58′ Eaſt. Poolo Peſang is high, and compoſed of two hills, which make like paps when firſt ſeen; it lies in 1° 28′ South, and 128° 53′ Eaſt. *Ceram* is all very high land.

" The South end of POOLO POPA bears from Peſang, N. 73° E. 18 leagues, there is a ſmall cluſter of iſlands called Boo, or Eſplie, lying between them, but neareſt to Popa, and nearly Weſt from it. The Dutch ſay you may get anchorage near them. *Myxol*, or *Myſol*, is to the ſouthward of this part of Popa, and is of a moderate height and level; the north ſide of it is lined with ſmall iſlands, the outermoſt of which lies ſeveral miles off it: theſe are called the *Canary Iſlands*, and bound the Pitt's Paſſage on the ſouth ſide: between them and the ſouth-eaſt part of Popa the Straits are only 9 or 10 leagues wide. The largeſt of the Canary Iſlands is in 1° 44′ South, and 17′ weſtward of Popa.

" POOLO POPA (or *Popo*) is 5 or 5½ leagues in length, from Eaſt to Weſt, including the ſmall iſlands off its weſt end, and about 3 leagues from North to South: it is very remarkable, by having two hills on its north-weſt end, one of which appears like the crown of a hat, and the other of an oblong form; the eaſt part of the iſland is perfectly flat, the ſouth point of it lying in 1° 12′ South, and 129° 49′ Eaſt: ſeveral ſmall iſlands lie near it. The ſouth-eaſt part bears from the entrance of the Pitt's Straits, W. S. W. and from *Fiſher's Iſland* S. W. by W. 14 or 15 leagues. Fiſher's Iſle is bearing about W. ½ N. 2 miles from Cape Mabo, the weſt point of the Iſland Batanta, and is a ſmall high iſland lying in 0° 54′ South, and 130° 23′ Eaſt. The paſſage to Dampier's Straits is on the north ſide of this iſland, and that to the Pitt's Straits to the ſouthward of Cape Mabo, when you are to the eaſtward of Popa, you ſee the high land of Batanta, and of Salwatty, which is likewiſe very high."

ACCOUNT

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# ACCOUNT OF PITT'S STRAITS, &c.

By M. HORSBROUGH.

## WITH AN ADDITIONAL DESCRIPTION OF THE ANCHORAGE.

"PITT'S STRAITS lie between Salwatty and Batanta; they are very narrow, and have rapid tides: there are no foundings going through them, except near Salwatty, on the eaſt ſide of Roggewyn iſland, which is a ſmall iſland at the weſt entrance of the Straits, and muſt be paſſed on the north ſide in going through; and at a ſmall diſtance from a ſhoal or reef or rocks, off the ſouth-eaſt end of Batanta; you muſt be careful not to approach them, as the want of anchorage may expoſe you to danger: for theſe reaſons Pitt's Straits are ſeldom frequented, and Dampier's are preferred, being ſhorter and wider, with anchoring ground in the narroweſt part.

"After a ſhip is in Pitt's Straits, in caſe of night coming in, without moon light, ſhe may haul in for the Salwatty ſhore, where ſhe may anchor, ſhould occaſion require. Steer right through theſe ſtraits till near the ſouth end of Batanta; then haul over to the ſouthward toward Jackſon's Iſland, to give a birth to the reef off the eaſt end of Batanta; it runs a conſiderable diſtance out of that end of the iſland, but there are foundings on the weſt and ſouth ſides of it. *Jackſon's Iſland* is high, and lies off the north-eaſt end of SALWATTY.—When paſt the reef you may ſteer for *Point Pigot*, which is the ſouth-eaſt point of the Iſland Waygeeo; and when to the eaſtward of it you are in the Pacific Ocean."

The PITT'S SOUNDINGS and ANCHORAGE in the eaſt part of the Straits.

Ground 55 fathoms, *Jackſon's* Iſland - - - - - - - S. 41° E.
Ditto 39 39, Ditto - - - - - - - - - - - S. 38° E.
Eaſternmoſt land of *Batanta* - - - - - - - N. W. by. W.
Driving to the N. N. E.

Ground 29, 28, 19, 17, 15, 13, 13, 22, coral rocks and ſand, and 25 fathoms, *Jackſon's* Iſland - - - - - - - - - - - - - - - - - - - - S. 33° W.
Eaſternmoſt part of Batanta - - - - - - - - N. 69° W.

Between the laſt bearings and thoſe that follow, driving to the N. N. E. had ground 30 40, 44, 42, and 40, and in 45, *Jackſon's* Iſland - - - - - - - S. 30° E.
Eaſternmoſt land of Batanta - - - - - - - - - N. 63° E.

Firſt Anchorage in 33 fathoms
*Jackſon's* Iſland - - - - - - - - S. 25° E. 3 or 4 leagues.
*Paſſage* Iſland ſhut in with *Batanta* and *Salwatty* - - W. S. W.
Eaſternmoſt land of *Batanta* - - - - - W. N. W. 3 leagues.
Eaſternmoſt land in ſight - - - - - - - - - - E. ½ N.
Ditto ditto of Waygeeo - - - - - - - - N. E. by N.

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The Longboat N. N. W. 2 miles, not leſs than 12 fathoms, and the Yaul N. 10°. E. to N. 21° E. irregular from 10 to 6 fathoms, and once 4, and then ſaw the coral rocks under them.

SECOND ANCHORAGE in 22 fathoms.

*Jackſon's* Iſland - - - - - - - - - - S. 15° E. 4 leagues.
*Paſſage* Iſland - - - - - - - - - - - - - W. S. W.
*Batanta* - - - - W. by S. ½ S. to W. by N. ½ N. 4 leagues.
Eaſternmoſt part of *Salwatty* - - - - - - - - - W. 24° S.
Ditto of *Waygeeo* - - - - - - - - - - - N. N. E. ½ E.
Ditto of *New Guinea* - - - - - - - - - E. by N. ½ N.

THIRD ANCHORAGE in 21 fathoms.

*Jackſon's* Iſland - - - - - - - - - - - - - S. 13° E.
Extremes of *Batanta* - - W. 20° S. and W. 20° N. 3 leagues.
Weighed: no ground 95, 98, 70, 68.
*Jackſon's* Iſland - - - - - - - - - - S. ½ W. 3 leagues.
Extremes of *Batanta* - - W. 10° S. and W. 28° N. 4 leagues.
Eaſternmoſt land of *Salwatty* - - - - - - - - E. by S. ½ S.

FOURTH ANCHORAGE in 22 fathoms.

*Jackſon's* Iſland - - - - - - - - - S. 5° E. 3 or 4 leagues.
*Paſſage* Iſland (the ſouth-weſt end ſhut in with *Salwatty*) W. S. W.
Eaſternmoſt land of *Waygeeo* - - - - - - - - N. N. E. ½ E.
Ditto of New Guinea - - - - - - - - - - - E. by N.

Weighed, and ſtood E. by N. and E. N. E. 5 miles, and had ſoundings 20, 21, 29, no ground, 35, ground, 50, 43, 45, 40, 48, 50, 49, 50, no ground, 50, when *Jackſon's* Iſland bore - - - - - - - - - - - - - - - - - - S. by W. ½ W.
Northernmoſt land of *Batanta* - - - - - - - - W. 10° N.

From the forementioned bearings and ſoundings, it appears that this bank extends with *Jackſon's* Iſland bearing between S. by W. to S. 41° E. the north part of it is dangerous, and the beſt anchorage is with *Jackſon's* Iſland from South to S. 15° E. *Paſſage* juſt ſhut in with *Salwatty*, W. S. W. and the eaſternmoſt land of *Batanta* - - W. 20° N.

An account I have of this bank ſays

" Bank of anchorage, eaſternmoſt part of Pitt's Straits, is a bank of fine ſand and coral, ſtretching N. E. by N. 3 leagues, on which is 5½ to 30 fathoms.

" *Jackſon's* Iſland - - - - - - - - - - - - - S. by W.
" *Paſſage* Ditto - - - - - - - - - - - - - S. W. by W.
" Eaſternmoſt part of *Batanta* - - - W. by N. 3 leagues."

The PIGOT'S BEARINGS when on ſhore on this bank.

*Jackſon's* Iſland - - - - - - - - - - - - - S. ¾ W.
Eaſternmoſt extremes of *Batanta* - - - - - - - W. ſoutherly.
Weſternmoſt ditto on with *Salwatty* - - - - - - S. W. by W.



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*Pigeon's* Iſlands E. S. E. to S. E. by S. diſtance from the neareſt 7 or 8 miles, and from the extremes of *Batanta* 5 or 6 leagues.

Northernmoſt extremes of *New Guinea* - - - - E. northerly.

The GLATTON on this bank in 6 fathoms, rock.

*Jackſon's* Iſland - - - - - - - - - - - - - S. by E. ¼ E.

*Batanta* - - - - - - - - - - - S. W. ¾ W. to W. ¾ N.

Standing N. E. by E. 1½ mile, had from 6 to 32 fathoms, as faſt as they could heave the lead, and in 32 fathoms, *Jackſon's* Iſland - - - - - - - - S. by E. ¼ E.

*Batanta* - - - - - - - - - - S. W. ¾ W. to W. ¼ N.

The GLATTON's anchorage in 38 fathoms, fine brown ſand; on the Batanta ſhore, eaſt part of the Straits; the higheſt part, which is the north end of *Jackſon's* Iſland, E. by S. ¼ S.

Eaſternmoſt part of *Salwatty*, that forms the mouth of the Straits S. S. E. ¼ E.

Eaſternmoſt end of Ditto in ſight - - - - - E. S. E. eaſterly.

Weſt point of *Paſſage* Iſland - - - - - - - W. S. W.

Southernmoſt point of *Batanta* - - - - - W. by S. ½ S.

Eaſternmoſt ditto of ditto - - - - - - - N. by E. ½ E.

North point of *New Guinea* - - - - - - - - E. by N.

Off the Batanta Shore 2 miles.

Memorandum while at this anchorage:

"Oppoſite to one of the weſternmoſt of the two openings into a deep bay on *Batanta*, in the mouth of which ſtands rather a large iſland; cloſe to the eaſt part of this iſland there is a rock, with ſome trees and buſhes, which is a good mark for anchoring, bearing about North, diſtance 1 mile. The paſſage into the bay to the eaſtward of this iſland ſeems to be largeſt, and, if I may judge from the quantity of ſmoke, there appeared at the bottom of the bay a pretty large town: and I dare ſay within the iſland and near the town is a fine harbour. (Captain *Clements*).

Captain SCOTT's ANCHORAGE *on the Salwatty Shore, when in the* WARWICK.

Bearings as follow in 30 fathoms bank of ſand:

*Paſſage* Iſland, open with the point about a ſail's breadth, W. ½ S. 8 miles, a town with many houſes, Eaſt of which is the only one, or firſt upon that ſhore, from the weſtward; and a little to the weſtward of this anchorage (¾ of a mile) is a fine freſh water river, and three ſmaller ones; betwixt it and the large town there is 25 fathoms ½ a mile from the ſhore.

LORD HOLLAND's ANCHORAGE *on the Salwatty Shore.*

Got ground off the 3d point, from the eaſt end of the Straits, about 2½ miles within it, 95 fathoms. Anchored in 58 fathoms, fine gravel and ſmall ſhells.

*Batanta* - - - - - - - - - - - - - - - N. 32° E. to W.

*Jackſon's* Iſland juſt on with extremes of *Salwatty* - - - N. 86° E.

Extremes of *Batanta*, weſtward - - - - - - - - N. 35° W.

Ditto of New Guinea - - - - - - - - - - - N. 70° E.

Off ſhore ¼ mile.

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The cutter a little farther in the Straits found 40 fathoms, and ſhoaling regularly inſhore to 8 and 7 fathoms, and then a rocky beach.—The officer reported that they found a ſtream of exceeding good water, convenient for getting off, and an excellent place for wooding and watering.

## ACCOUNT OF DAMPIER's STRAITS.

By M. HORSBROUGH.

"DAMPIER'S STRAITS are formed by the Iſland of Batanta, on the ſouthward, and that of Waygeeo on the North: there are ſeveral iſlands in it; GAMEN is the largeſt, and lies cloſe to the ſouth ſide of Waygeeo, appearing as part of it: KING WILLIAM'S ISLAND is the next, near the middle of the Straits, and appears high, and like the other iſlands when to the eaſtward of it. The paſſage is to the ſouthward of this iſland, as alſo to the ſouthward of two other ſmall iſlands, called *Auguſta* and *Pigeon*, which are very low, and lie to the ſouthward of the weſt end of King William's Iſland; the weſternmoſt is Auguſta, and the eaſternmoſt Pigeon Iſland. *Fowl Iſland* lies between the eaſt end of King William's Iſland, and the north end of Batanta, but nearer to the latter; it is a ſmall level iſland, and the channel is between Auguſta, Pigeon, and King William's Iſlands, to the northward, and Fowl Iſland to the ſouthward. Due Eaſt of Fowl Iſland is a ſmall ſand bank, part of which covered with tall trees, which is called *Mansfield's Iſland.* This iſland is on the ſouth ſide of the Straits; there are ſeveral others between it and Batanta, but ſcarcely diſtinguiſhed from Batanta, being very near that iſland. On the north ſide are likewiſe ſeveral iſlands, but lying cloſe to Waygeeo. The Iſland of Batanta is about 13 leagues from Eaſt to Weſt; its weſt point, Cape Mabo, lies in 0° 56′ South, and 130° 25′ Eaſt."

"On leaving Poolo Popa, if the wind ſhould be northerly, haul up N. E. or N. E. by N. ſo as to be able to lie round the north-weſt end of Batanta, obſerving not to approach near the chain of iſlands lying to the weſtward of Batanta, 8 or 9 leagues from Cape Mabo; theſe iſlands are not well known, therefore it is proper to give them a good birth, by borrowing on Batanta, the weſt end of which is perfectly clear of danger; and when 3 or 4 leagues to the N. E. of *Fiſher's* Iſland, there are ſoundings as far as Fowl Iſland. Being to the northward of Fiſher's Iſland, a ſhip ſhould not exceed 3 or 4 leagues diſtance from Batanta, as towards the iſlands to the weſtward of it it is not perfectly known: there is a ſpot on which the *Auguſta* had only 3 or 4 fathoms, which bears W. by S. 2 leagues from Auguſta Iſland; another ſpot, on which the *Mansfield* had 6 fathoms, bears about W. S. W. 4 miles from Auguſta Iſland. The ſoundings in theſe ſtraits are in general irregular, the bottom gravel, with coral and ſhells in ſome places; you have from 30 to 60 fathoms, till 3 or 4 miles to the eaſtward of Pigeon Iſland; when paſt this diſtance you meet with 10 and 12 in ſome places, but it deepens faſt in ſtanding toward the ſhoal which ſurrounds Fowl Iſland; this is called *Vanſittart's Shoal*; it extends 3 miles to the N. W. of Fowl Iſland,



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and then trenches directly to the ſouthward, till it reaches Batanta. When you have paſſed at the diſtance mentioned from Batanta ſhore, and Auguſta Iſland bears N. E. by E. or N. E. you ſhould then edge over towards it and Pigeon Iſland, to keep at a proper diſtance from the north-weſt part of the ſhoal, by not coming nearer Fowl Iſland than 5 or 6 miles, when it bears Eaſt, nor within 4 miles when it bears to the ſouthward: from the North the ſhoal runs in a direct line from Mansfield Iſland, which is upon the edge of it, and then runs toward the eaſt end of Batanta. Auguſta and Pigeon Iſlands may be approached on the ſouth ſide at a ſmall diſtance if neceſſary: if you ſee Mansfield Iſland, it is a good guide for the ſhoal ſpots which the Auguſta and Mansfield were upon; keep it on with the ſouth part of Fowl Iſland, and you will go clear to the ſouthward of them both. When to the eaſtward of Pigeon Iſland, and you have it bearing Weſt 4 or 5 miles, you ſhoal to 10 or 12 fathoms, but borrow over toward Fowl iſland, and the ſhoal, you will deepen, there being 60 fathoms on the north and north-weſt verge of the ſhoal. When Fowl Iſland bears S. by E. or South, there are no more ſoundings, and you are clear of danger; only do not near Batanta ſo as to be in a line with Fowl and Mansfield Iſlands, as that line borders on Vanſittart's Shoal.

" When paſt Fowl Iſland ſteer for *Point Pigot*; along the Waygeeo ſhore you will ſee ſeveral ſmall iſlands lying cloſe to that point, which appear like inlets of a river: if the wind be from the northward, approach Point Pigot, ſo as to be able to keep at a tolerable diſtance from New Guinea, when clear of the Straits. POINT PIGOT is the ſouth-eaſt end of Waygeeo; it is moderately high, and two ſmall iſlands lie at a very little diſtance from it; its latitude is 0° 21′ South; the longitude 131° 18′ Eaſt. The north-weſt point of New Guinea is low, but after you have got a few leagues to the eaſtward of Point Pigot, all the north coaſt is very high land; between Point Pigot and New Guinea the paſſage is about 8 leagues wide; when outſide, a ſhip ſhould make to the eaſtward till ſhe gets ſufficient eaſting to paſs to the eaſtward of the Pelew Iſlands, giving a reaſonable diſtance to the north coaſt of New Guinea.

" In Dampier's Straits the tide ſeems very irregular, and very ſtrong at times: coming from the Pacific Ocean in Auguſt, 1793, in the *Anna*, we had a tide ſetting to the weſtward, when 3 or 4 leagues outſide of Point Pigot, it continued the firſt night and part of the next day, but did not run ſtrong. When nearly abreaſt of King William's Iſland, we found it made to the eaſtward, with ſtrong eddies, but only continued 2 hours.

" Fowl Iſland bearing South, we had no ground; an hour afterwards had 12 fathoms; anchored, and brought up in 10 fathoms, ſand and coral; ſent the boat to ſound, found it deepened gradually towards Batanta, with 32 fathoms, half a mile from the ſhip, in that direction: toward King William's Iſland got 10 fathoms, at ſome diſtance from the ſhip. When at anchor Fowl Iſland bore S. E. by E. $\frac{1}{4}$ E. the weſtern extreme W. N. W. $\frac{1}{4}$ N. and Pigeon Iſland W. $\frac{1}{4}$ N. about 5 miles diſtant. The tide at this time ſet weak to the weſtward, but afterwards increaſed gradually, and took a S. W. by S. direction, towards Batanta; it ran at its height 5 knots, and abated as gradually as it increaſed, but continued to run much longer than common tides do. There is a ſmall iſland off the eaſt end of King William's

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William's Iſland called *Heron*; whether there be leſs water near the ſouth ſide of King William's Iſland, was not determined on board the *Anna*."

## ANCHORAGE IN DAMPIER's STRAITS.

NORTHUMBERLAND'S ANCHORAGE, 36 fathoms, coarſe gravel, and ſome coral.

Extremes of *Pigeon* Iſland - - W. 51° N. and W. 30° N. 2 miles.
Spot of dry ſand, eaſt end of ditto, - - - - - - - W. 59° N.

*Auguſta* iſland, two-thirds ſhut in with *Pigeon* iſland, the ſouth-weſt end open, W. 24° N.

Extremes of *King William's Iſland*, the ſouth-weſt end over the eaſt end of *Pigeon* Iſland - - - - - - - - - - - - - - - - - W. 47° N. and N. 31° E.
White Patch on *King William's* Iſland - - - - N. 18° 30' E.
*Hum* Iſland, juſt open with the north-eaſt end of *King William's* Iſland.
*Foul* Iſland - - - - - - - - - - S. 75° E. 5 or 6 miles.
*Mansfield* Iſland - - - - - - - - - - - - - - - S. 84° E.
*Small Spot* of trees - - - - - - - - - - - - - - S. 80° E.
Weſt end of *Fowl* Iſland, juſt ſhut in with the eaſt extremes of *Batanta*.
*Cape Mabo* - - - - - - - - - S. 50° W. 7 or 8 leagues.
*Point Pigot* - - - - - - - - - N. 64° E. 13 or 14 leagues.

*N. B.* Seven ſhips anchored to the S. W. extremes of the weſtern cluſter of iſlands. W. and W. 19° N. of the iſlands.

SOUNDINGS *round* AUGUSTA *and* PIGEON *Iſlands*, taken in a boat *per Northumberland*, 1796, Auguſt.

21 fathoms eaſt part.—*Pigeon* Iſland - - - - - - - - N. W. by W.
Dry ſpot of ſand at the eaſt end of ditto - - - - - N. W. ½ N.
Weſt part of *King William's* Iſland - - - - - - - - N. W.
20 fathoms, a little to the - - - - - - - - - - - - - - S. W.
7 fathoms, coral rock:—
Weſt part *King William's* Iſland - - - - - - - - - - N. W.
Weſt end *Pigeon* Iſland, two cables' length diſtance, - - W. by N.

*Pigeon Iſland.*—On the ſouth part of *Pigeon* Iſland the coral bank extends 40 fathoms from the ſhore, with only 3 and 4 feet water; then deepens to 3, 5, and 10 fathoms, in a boat's length. Off the eaſt end the coral rocks, with 3 and 4 feet water, extend about a quarter of a mile in nearly the ſame direction as the iſland lies.

*Auguſta Iſland.*—Off the weſt end, within half a cable's length of the ſhore, is 5 fathoms; and rounding the weſtern part of the iſland at the ſame diſtance 17; running along at the ſame diſtance round the north part had 7 fathoms; found about the centre 8, and towards the north-eaſt part 9 fathoms. Off the eaſt end not more than 2, till the white patch on *King William's* Iſland bore N. by W. and the weſt end of *Pigeon* Iſland S. by E.

The channel between the two iſlands runs nearly N. E. by E. and S. W. by W. and in going through it kept *Hum* Iſland a ſhip's length open of the eaſt end of *King William's* Iſland,

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Iſland, bearing nearly N. E. by E. had 12, 14, and 22 fathoms; and nearly mid-channel 30, with the body of Auguſta W. by N. and of Pigeon Iſland E. by S.

On the north ſide of *Pigeon* Iſland, half a cable's length diſtance, had 3 and 4 feet over the coral rocks; then deepened inſtantly to 3 and 8 fathoms. Towards the eaſt end there is a baſon about twice a ſhip's length, with 7, 8, 9, and 10 fathoms water in it, but there is no channel into it, being environed to the northward by coral rocks, with only 3 or 4 feet water on them. The iſland on the other ſide of it is ſteep-to.

*Soundings* on a bank of ſand and coral rocks, to the eaſtward of *Pigeon Iſland*, taken in a boat, 6 fathoms N. by E. from the ſhip at anchor:

| | | |
|---|---|---|
| | *Fowl* Iſland | E. S. E. ½ S. |
| | Weſt end of King William's Iſland | N. W. by W. |
| 6 fathoms. | *Fowl* Iſland | E. S. E. |
| | *Auguſta* Iſland | W. |
| | *Cape Mabo* | S. W. |
| | *Pigeon Iſland* | W. ½ S. |
| 9 and 11 fathoms. | *Fowl* Iſland | S. E. by E. |
| | *Hum* Iſland | N. E. ½ E. |
| 10 fathoms. | *Fowl* Iſland | E. by S. ½ S. |
| | *Pigeon* Iſland | W. by S. |
| | *Cape Mabo* | S. W. |
| 10, 9, ½ 8 fathoms. | Weſt end of *King William's* Iſland | W: N. W. |
| | *Fowl* Iſland | E. S. E. ½ S. |

To iſlands to the weſtward, open between *Auguſta* and *Pigeon* Iſlands.

| | | |
|---|---|---|
| 10 fathoms. | *Pigeon* Iſland | W. ½ S. |
| | *Fowl* Iſland | S. E. by E. |
| ½ 8 fathoms. | *Auguſta* Iſland | W. |
| | *Fowl Iſland* | S. E. by E. |

WORKING OUT OF THE STRAITS.

| | | |
|---|---|---|
| Tacked in 40 fathoms. | *Fowl* Iſland | E. ½ S. |
| | Weſt end of *Auguſta* Iſland | N. N. W. ½ W. |
| | Ditto of *Pigeon* Iſland | N. by E. |
| 27 fathoms. | *Augnſta* Iſland | N. to N. N. E. |
| | *Fowl* Iſland | E. |
| 39 fathoms. | *Pigeon* Iſland | N. E. ½ N. |
| | *Fowl* Iſland | E. |
| Tacked in 43 fathoms. | *Auguſta* Iſland | N. N. E. ½ E. |
| | *Pigeon* ditto | N. E. ½ E. |
| | *Fowl* ditto | E. ¼ N. |

Tacked in 44 fathoms, ſame bearings farther over to the Batanta Shore.

42 fathoms. *Pigeon* Iſland, open of the eaſt end of *King William's* Iſland N. E. by E.
*Auguſta* ſhut in with it N. E. ½ N.

ANCHORAGE

ANCHORAGE of the ſhip in 38 fathoms, ſand and ſhells, with purple coral.

Body of *Fiſher's* Iſland - - - - - - - - - - - - S. 29° ½ W.

Extremes of *Batanta* from Cape Mabo W. 67° S. and E. 37° ' S. off ſhore 8 or 9 miles.

Extremes of the chain of ſmall iſlands to the weſtward W. 3° S. to the weſt extreme of *King William's* Iſland - - - - - - - - - - - - - - - - - N. 40° E.

Eaſt extreme of ditto - - - - - - - - - - - N. 52° 50' E.

Body of *Auguſta* Iſland - - - - - - - - - - - - N. 55° E.

Ditto of Pigeon iſland - - - - - - - - - - - - N. 61° ½ E.

Ditto of Fowl Iſland - - - - - - - - - - - - - E. by N.

*Soundings* from the ſhip to a low woody iſland, where wood was cut, nearly abreaſt of her, 28 to 40 or 50 fathoms, coral rock. The coaſt abreaſt of the ſhip appeared to have many breaks and deep bays; but on examination theſe were found to be a cluſter of iſlands bordering Batanta's north ſide; had no ſoundings any where, although they went 3 or 4 miles depth into the different bays, except near the low woody iſland juſt mentioned; the current ſetting 3 or 4 knots among them, and no landing on account of the mangroves.

Another ANCHORAGE near the iſlands, ſouth-weſterly of them, in 35 fathoms, coral and ſhells.

*Fowl* Iſland - - - - - - - - - - - - - - - - - S. 83° E.

Breakers off the eaſt part of *Pigeon* Iſland - - - - - - N. 66° E.

Body of ditto Iſland - - - - - - - - - - - - - N. 63° E.

*Auguſta* ditto - - - - - - - - - - - - - - - N. 34° ½ E.

Diſtance from Auguſta Iſland 3 miles.—From theſe bearings and diſtance the ſoundings were regular towards *Auguſta* Iſland, 35 ſand and coral, to 20, 17, 16, 12, and 6, cloſe to the beach.

I am of opinion a ſhip may anchor with ſafety abreaſt to the ſouthward either of Auguſta or Pigeon Iſlands, in about 17 fathoms, ſand, coral, and ſhells, within a mile of the ſhore, and get plenty of wood. The tide appears to riſe and fall on the iſlands about 26 feet.

SOUNDINGS and bearings on a ſmall ſhoal which I take to be the *Auguſta Shoal*.

½ 5 fathoms, boat at anchor, coral rock.

*Fowl* Iſland - - - - - - - - - - - - - - - - E. by S. ½ S.

The eaſt part of *Pigeon* Iſland - - - - - - - - E. N. E. ½ N.

Body of *Auguſta* ditto - - - - - N. by E. ½ E. 2½ or 3 miles.

The whole ſhoal about half a cable's length in breadth, ſoundings from the centre, where the boat lay, all round ½ 6, to 16 and 22 fathoms, gradually deepening towards the two iſlands, and every other direction.

BANK to the eaſtward of *Pigeon* Iſland ſounded as before.

Moſt of the fleet were driven over this bank by a ſtrong tide. It appears to be nearly circular, and about 3 miles in extent, with deep water all round, and ſafe for a ſhip to paſs either over it, or on either ſide, as from our ſoundings on it, as well as other accounts of thoſe who have ſounded it, there is not leſs than 6 fathoms on it, and the paſſage clear, I believe,

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believe, between it and *Fowl* Iſland, if you keep at the diſtance of about 3 miles from *Fowl* Iſland.

There may be dangers in *Dampier's* Straits that have not yet been diſcovered; but I think on the whole they are ſafer and more convenient than the *Pitt's Straits*, or any other that I have any knowledge of, ſo far eaſtward, to paſs into the South Sea, having anchorage where the current runs ſtrongeſt.

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## REMARKS ON THE PITT'S PASSAGE, AND OF THE ENTRANCE INTO THE PITT'S PASSAGE TO THE EASTWARD OF BOURO, OR BETWEEN THAT ISLAND AND CERAM.

By Captain ROBERT WILLIAMS, of the THAMES.

"IN theſe obſervations I do not mean to include the whole of that track which Mr. *Dalrymple* calls the PITT'S PASSAGE, and what he ſays is not merely the particular rout purſued by that ſhip, for it is the name given to any Paſſage to China that is made to the eaſtward, by taking advantage of the Monſoon blowing in different directions of each ſide of the Equator; but I ſhall confine them principally to that part of it, which has for its ſouthern limits or ſhores, the iſlands of *Bouro*, *Ceram*, and *Myſol*, and for its northern *Xulla-Beſſy*, *Ouby-Major*, and the chain of ſmall iſlands lying between that and *Poolo Popa*, extending to the N. E. as far as Batanta and Salwatty: and as I am now entering on my remarks on thoſe ſeas, where the wind is governed by the ſeaſons, it may not be amiſs to call to memory, that it is a fact as well eſtabliſhed (as it is generally known) by thoſe writers, under whoſe conſideration it may have fallen, that from April to October the S. W. winds blow to the northward of the Equator, and the S. E. to the ſouthward of it, while from October to April, the N. E. winds are blowing in north, and the N. W. in ſouth latitude: it is alſo a general obſervation that a N. W. wind in a northern and a S. W. in a ſouthern latitude, are commonly the attendants of fair weather; but the wind no ſooner ſhifts into the N. W. quarter, under a ſouthern, or into the S. W. under a northern latitude, than we are with every probability to expect rain; and alſo with a S. E. in a northern, and N. E. in a ſouthern latitude the ſame rule holds good: when the N. E. winds North of the Line, and the S. E. South of it, are generally the prognoſtics of fine weather."

"It has alſo been obſerved, that at the Moluccas they call the Weſtern Monſoon the *Northern* one, and the Eaſterly Monſoon the *Southern* one, becauſe during the former the winds blow more generally from N. N. W. than from Weſt, and during the latter they come moſt frequently from S. S. E." And this in ſome degree I have found from experience. "Theſe winds prevail likewiſe in the iſlands of *Papua* and on the coaſt of New Guinea." And Monſ. *Bougainville*, who navigated theſe ſeas on a voyage of diſcovery commanding *La Bondeuſe* French frigate, in company with *L'Etoile* ſtore ſhip, in a paſſage from Port Praſlin on the coaſt of New Georgia to the Moluccas, "mentions that between the

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the months of July and September, he was thirty-ſix days in making 450 leagues." The Northern Monſoon is attended with heavy rain, and ſometimes ſtrong gales and ſqualls, at the full and change of the Moon; this I aſſign as the principal reaſon why the currents are ſuppoſed to ſet ſtronger during thoſe months, in which this Monſoon is blowing, than in thoſe which bring the oppoſite one, and are generally attended with fine weather: April and October are the months in which the changes commonly take place.

With this general view of the courſe of the winds, the navigator will be enabled to take ſuch precautions as he may deem neceſſary to make the moſt of them, though he will recollect alſo, that he muſt expect ſometimes to find many deviations from it; for I am perſuaded there is hardly any poſition ſo ſurrounded and connected with land, forming ſuch large iſlands as exiſt in thoſe ſeas, that will not afford a ſhip a kind of local land-wind ſo as to enable her to purſue that rout, which may be wiſhed for, in a moderate courſe of time: and this will be obtained by getting cloſe in with either one ſhore or other, which in general, from their banks being ſteep-to, may be done without danger if I may be allowed the expreſſion.

One of the very important cautions particularly enforced by Mr. *Dalrymple*, in his Inſtruction for the Eaſt India Navigation, Vol. II. page 15, is that in paſſing to the eaſtward of Booton, it is very neceſſary to keep well to the northward to make ſure of weathering Bouro; neglecting this, occaſioned conſiderable loſs of time to the *Penſborne*; and the *Revenge* thereby fell to leeward of Bouro, and was obliged to paſs to the South of that iſland. And Mr. *Robertſon*, in his remarks on this paſſage, ſays, "in ſtretching over from *Weywongy* to gain the paſſage between the *Xullas* and north part of Bouro, the greateſt care is abſolutely neceſſary in order to prevent falling to leeward, which has ſometimes happened from inattention to the ſtrong ſoutherly currents, which at this ſeaſon (December) run at the rate of from 20′ to 25′ *per* day. He adviſes every effort poſſible to gain northing, after leaving Waywongy, ſo as to fetch Xulla-Beſſy."

The caution given by theſe gentlemen on this occaſion, certainly is a very proper one; and under the idea exiſting at that period, of this paſſage, would prevent the navigator from getting into what he would then have thought a leeward, and of courſe a troubleſome ſituation, more eſpecially as the ſhips, in the Honourable Eaſt India Company's ſervice, were not then coppered, and of courſe unable to make ſuch good way in light weather as they are now. I confeſs myſelf, however, that I ſhould not be induced to make one board to gain that point; but without heſitation, if any difficulty occurred, immediately ſhould bear up for the paſſage between Bouro and Ceram, which is at leaſt quite as ſafe and as practicable: I am only ſurpriſed that any of the Company's ſhips ſhould have ever loſt an hour to weather Bouro, to the weſtward, and this I think would have never taken place had they been in poſſeſſion of ſufficient information on the ſubject. But as I have ventured to offer an opinion different from thoſe, whoſe abilities and exertions have rendered ſo much aſſiſtance to the ſcience of navigation, in order to inſpire that confidence which is abſolutely neceſſary for thoſe to poſſeſs, who may have to decide in any



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doubtful caſe, I am induced to ſtate the following proofs; theſe will I think in ſome degree ſtrengthen my opinion, and probably give it the effect which I wiſh it to deſerve.

On the 5th of February 1797, I weighed from Amboyna Bay, on my outward bound voyage, which is far to leeward in the weſtern Monſoon, in company with the fleet under the command of Captain *Drummond*. During the night we had the wind off ſhore, and entered the *Pitt's Paſſage* by the track to the eaſtward of Bouro, when we met with light winds moſtly from W. S. W. to N. W. and ſometimes more variable; ſo that a ſhip could without difficulty have gained any point ſhe wanted. We had little or no current till drawing up with Poolo Popa, and towards the entrance of Dampier's and Pitt's Straits, when we experienced it ſetting to the S. E. it was even in agitation at one time to have attempted the *Molucca Paſſage*, and there was very little doubt entertained at Amboyna of its being practicable. On my return from China the ſame ſeaſon I alſo paſſed through the Pitt's Paſſage early in Auguſt; and in coming out of Dampier's Straits met the wind freſh from S. E. with a current ſetting to the N. W. However I fetched well in with Poolo Popa the firſt board, and tacked in the evening, carrying a moderate ſail; I ſtood to the eaſtward till day-light, when I again put about, and without any farther difficulty laid through: the wind which had before blown ſtrong from the S. E. now became weak and variable, as we brought the land on both ſides, the current all the way through them continued ſetting to the weſtward, at the rate of 20 and 25 miles *per* day, till we got off the mouth of that track which lies to the eaſtward of Bouro, and between that and Ceram; and which, as I intended to paſs down the *Banda ſea*, I meant to have gone through, as it would have led me into that ocean ſo much farther to windward. But the wind coming ſtrong from the S. E. I bore up immediately to the northward and weſtward of Bouro, notwithſtanding which I fetched down the Banda ſea, to windward of the Toocan-Beſſys, and even after all paſſed to the eaſtward of Ombay; and this was done by the aſſiſtance of thoſe land-winds which I have before mentioned. The *Pitt* alſo in July returned home this way in 1792, and met the winds ſufficiently variable for any purpoſe, blowing from S. by E. to Eaſt, with ſqualls and rain, and ſometimes from S. S. W. with the current ſetting to N. W. And the *Anna*, who returned from China this rout, in the latter end of July, and the beginning of Auguſt, had light pleaſant breezes all round the compaſs, but the current ſetting generally to the N. W. and ſometimes S. S. W. 20 miles in 24 hours; and again the *Mansfield* (not coppered) paſſed through this paſſage in the month of December, which is the period Mr. *Robertſon* particularly mentions, and found the currents ſetting to the ſouthward as deſcribed in his publication. Indeed the journal ſhews that after getting ſight of Bouro, ſhe was ſet 74 miles to the ſouthward in 4 days, but then ſhe had the wind variable, from N. W. to N. E. ſometimes going 4 and 5 knots, and ſometimes very light; and after ſhe got fairly within the entrance of the paſſage, had it all round the weſtern ſide of the compaſs, from N. to S. and even for a ſhort time light airs at E. S. E. I ſhould think theſe circumſtances are ſufficient to do away any ſerious apprehenſion of falling to leeward of Bouro; and I believe it more than probable that, if the *Mansfield* had bore up to the northward and weſtward of that iſland, ſhe would have got the wind off ſhore,

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ſhore, found the current weaker if not ſetting in a contrary direction, and would have gained time by it for (as it was) they were 5 or 6 days getting to the eaſtward of the Xulla Beſſys. The ſituation of the different iſlands forming this paſſage have been ſo well determined, that there remains nothing for me to ſay on the ſubject: I ſhall nevertheleſs go over the ſame track here, as it will tend to make this view of the Paſſage more complete. In going through, after you have once entered, an E. by N. ½ N. or E. N. E. courſe made good, will take you to the entrance of the Pitt's Straits, the land be ſeen on both ſides all the way, and in order to effect this, attention muſt be paid to the current, and the courſe altered accordingly. The Iſland of Bouro, which forms the ſouth ſide of its entrance, extends about 20 leagues from Eaſt to Weſt, and from North to South about 13: the north part of it I found to lie in 3° ſouth latitude, and the weſt point my chronometer made in 126° 08′ Eaſt. It is in general of a moderate height, excepting one part that forms in a large dome, and may be ſeen in clear weather 16 leagues, frequently a long way above the clouds, when the remaining part of the iſland is obſcured. The principal town, called by the Dutch *Cajeli*, is ſituated on the eaſt ſide, and lies at the bottom of a gulf of that name, but known to the Engliſh by the name of *Bouro Bay*; here the Dutch formerly had a reſident, ſubject to the government of Amboyna. Acroſs from this iſland to Xulla-Bessy, which forms the north ſide of the entrance, the diſtance is called 15 or 16 leagues, and I have taken the latitude and longitude of it from Captain *Fraſer's* journal in the *Mansfield*, which places it in latitude 2° 28′ South, and longitude 126° 25′ 30″ Eaſt, as I had no good opportunity of determining its ſituation.

To the N. E. of this on the ſame ſide, lies next the iſland of *Oby-Major*, off the ſouth-eaſt part of which is the ſmall Iſland of Gomona: the latitude of this latter iſland I make 1° 55′ South, and longitude by chronometer 127° 52′ Eaſt. Mr. *Robertſon's* latitude is 1° 58′ South, longitude 128° 02′ Eaſt. Captain *Fraſer's* latitude 1° 53′ South, longitude 128° 05′ Eaſt, adopted longitude by mean of all 127° 59′ 45″ Eaſt, and latitude 1° 55′ South.

From Gomona to Piſang or Piſſang, there is a chain of ſmall iſlands, bearing nearly Eaſt and Weſt from each other: the principal ones are *Poolo Gaſſes*, *Poolo Kekik*, *Poolo Lawn*, with ſome other ſmall ones. Poolo Piſſang iſland is very remarkable in its appearance, forming in two hills, each nearly reſembling the other, and may be ſeen 10 leagues off; its latitude is 1° 27′ South, and longitude by my chronometer 129° Eaſt. By different ſets taken when the iſland bore North, Poolo Piſſang is 14 miles to the weſtward of what Mr. *Robertſon's* account makes it. The Popas are a cluſter of 9 or 10 ſmall iſlands, and ſaid to be inhabited; the largeſt, which is called Poolo Popa, is in latitude 1° 12′ South, and longitude by my chronometer 130° Eaſt. Having paſſed this iſle you immediately ſee the land of Batanta and Salwatty, and the entrance of the Pitt's Straits lies nearly Eaſt of it.

This is alſo a very remarkable iſland, the eaſt part of it being a flat of conſiderable extent, and forming to the weſtward in two remarkable high hills, which Captain *Forreſt* ſays are two different iſlands, and may be ſeen at a long diſtance. In leaving Dampier's Straits I ſtood cloſe in with it, and ſaw ſeveral fires on it during the night; it lies nearly Weſt from



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the Pitt's Straits. At noon on the ſame day, I had Cape Mabo bearing S. ½ W. and ſteered *by compaſs* S. W. ½ S. about 11 or 12 miles, till ½ paſt 2 P. M. and then ſaw the high land of Poolo Popa, from the deck, bearing S. W. ½ S. about 12 leagues diſtance. Here the Pitt's paſſage makes its narroweſt part, being only 8 or 9 leagues acroſs to the Kanary Iſlands, a cluſter of 7 or 8, in general low, covered with wood, and uninhabited: the largeſt of them is called the *Grand Kanary*. On this iſland Captain *Forreſt*, on his voyage to New Guinea in 1775, in ſearch of the nutmeg tree, found good water, in a pond ſituated on the ſouth end of it, and anchored in Round Harbour, ſo called by him, and lying between two ſmall iſlands named by him alſo, and which are at a ſmall diſtance on the eaſt coaſt. He alſo went to *Efbe* Harbour, on the coaſt of Myſole, in the latitude of 2° 12′ South, where there is a ſmall village, and was well received by the inhabitants.

In Round Harbour he caught abundance of fiſh, and on the iſlands near it a vaſt quantity of rattans were growing. Between Poolo Piſſang and Popa, in nearly the ſame latitude, and 4 or 5 leagues to the weſtward of them, lay the *Boo* Iſlands, whoſe latitude is 1° 17′ South. They conſiſt of 6 or 7 iſlands, have many inhabitants, and can ſupply cocoa-nuts, ſalt, and dried fiſh, and ſome goats: there is alſo anchorage among theſe iſlands, Captain *Forreſt* ſays 15 fathoms, ſandy bottom, cloſe to a ſmall ſandy iſland, which has ſome cocoa-nut trees upon it.

Between the Iſlands of Myſole and Bouro, is CERAM, the north-weſt coaſt of which forms the ſouthern ſide of Pitt's Paſſage. It is one of the largeſt iſlands ſituated hereabouts, and contains a large population. It has ſome ports on its different ſhores, where ſhips ſometimes reſort for water, as well as to carry on an illicit trade in ſpices, which are ſmuggled by the natives of that iſland from Amboyna, unknown to the exiſting government.

## ADDITIONAL REMARKS ON PITT'S STRAITS.

By Captain ROBERT WILLIAMS.

THE account that follows of theſe ſtraits, will be by no means ſuch as to induce any navigator to proceed through them; on the contrary, I ſhould wiſh to prevent any from attempting them, while the paſſage through *Dampier's*, remains as practicable as it now is; for I think them certainly the worſt navigation of any which I have paſſed through. They are formed to the ſouthward by *Salwatty*, and the cluſter of ſmall iſlands laying off the coaſt of New Guinea, and to the northward by the Iſland of *Batanta*, being called by the Dutch navigators *Sadgiwien*, or *Sagewin*. The diſtance from the weſt point of Salwatty, to the eaſt point of Batanta, will be found about 10 or 11 leagues; and they are at the wideſt part (when once fairly in) not above 7 or 8 miles acroſs, and in the narroweſt 4 or 5. Their ſhores, which are beautiful and luxuriant in appearance, are moſtly ſteep-to; ſubject to rapid currents, ſetting in all directions, and attended with ſtrong and dangerous

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dangerous eddies; theſe circumſtances, with the probability of little or no wind, from the land being high on each ſide, and the channel ſo narrow, renders them extremely dangerous as well as troubleſome. In a manuſcript chart of them, which I have in my poſſeſſion, and which was made by Captain *James Dewar* in the Ship *Warwick*, there is anchorage laid down in four different places, independent of the bank that lies off the eaſt end of Batanta, but in general very deep water, within a mile or leſs of the ſhore. The firſt of theſe places on the Salwatty ſide, in entering from the weſtward, is in a ſmall bight to the eaſtward of *Rogewin* Iſland, and bearing from it about W. S. W. which you ſee immediately on your entrance; the *Glatton* attempted to fetch it, but was prevented by the current. On this bank is marked from 9 to 30 fathoms. Mr. *Robertſon* in his chart alſo lays down a bank nearly in the ſame ſituation, with deeper water, and which ſhews from 15 to 65 fathoms, cloſe in with the ſhore: to the N. E. of this bank, there is another laid down in the ſame manuſcript, on the Batanta ſhore, on which the *Lord Holland* anchored in 30 fathoms. Mr. *Robertſon* takes notice alſo in his Chart of the ſame ſpot.

I went through theſe Straits in the *Thames*, on my outward bound voyage to China, in July 1797, in company with the *Glatton*, Captain *Drummond*, who was the ſenior officer, *Duke of Buccleugh* Captain *Wall*, *Walmer Caſtle* Captain *Bond*, *Carnatic* Captain *Jackſon*, and the *Royal Charlotte* Captain *Roper*: we entered them from the paſſage commonly known by the name of the *Pitt's*, with a light breeze from the weſtward, which towards the evening died away to a calm, and continued nearly ſo all the night; during that time our ſituation was very unpleaſant, for we were drove about with the current, which we found ſetting almoſt in all directions; and ſome of the ſhips were drifted out, and into the Straits again, before the morning. We ſaw one or two lights on each ſhore, in the courſe of the night. At day-light I found the *Thames* had drifted on towards the Eaſtern Entrance, and by ſix o'clock had with the remainder of the fleet, the tide ſetting extremely rapid to the eaſtward: here we alſo met the ſtrong eddies I have before mentioned, which had nearly proved fatal, not only to the ſhip under my command, but alſo to the *Walmer Caſtle*. At 8 in the morning it was calm, and the tide came in from the eaſtward with as much violence as it had before run the other way. The *Thames* was at that time laying on the ſtarboard tack with her head off ſhore, and a light air from the eaſtward; three boats a-head were endeavouring to tow her into an offing, but the current ſetting ſtrong inſhore, and a heavy head ſwell, it was not till after a length of time that I could get her off at all; and I had no idea but that in ſpite of every exertion ſhe muſt have gone on ſhore. The *Walmer Caſtle* on the larboard tack had weathered us at about half a cable's length diſtance, and I hailed Captain *Bond* as he paſſed, ſignifying my apprehenſion of the ſituation I was in; he had but juſt anſwered me, when the ſtrong eddy took his ſhip on the bow, and notwithſtanding every poſſible means to avoid it, ſet him directly on the Salwatty Shore. Boats from each ſhip were immediately ordered to him by ſignal from the commanding officer, and with the aſſiſtance of a light air which came off the land, after ſailing along the ſteep bank, breaking the boughs of the trees with his yard arm, he got clear without damage. While the ſhip was among the trees, they ſaw ſeveral of the natives, who appeared

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peared nearly naked, were much frighted, and ran away when the ſhip fired her ſignal guns.

The ſituation theſe ſhips were in will in ſome meaſure point out the propriety of keeping as near the mid-channel as poſſible; and not be tempted to be led inſhore with a ſlant of wind, under any favourable idea whatever; though the current ſhould appear to be ſetting ſtronger in your favour there, and which in ſome parts of the Straits I found ſometimes to be the caſe.

The fleet under Captain *Farquharſon*, who attempted this paſſage a few weeks afterwards, met alſo with ſome difficulty; and part of them, after getting nearly through, were driven back by the current, and afterwards went in preference through Dampier's Straits.

The *Lord Holland's* track, which is laid down in the Manuſcript Chart, to which I have before alluded, ſhews that ſhe met with ſome difficulty of the ſame kind, but by perſeverance afterwards got through the Straits.

After paſſing through our fleet anchored on the bank, which lies off the eaſt point of Batanta; this bank extends all round to *Foul* Iſland in Dampier's Straits, and on it are ſome coral rocks with very ſhoal water over them. I anchored within a mile of them, after paſſing very nigh their ſhoaleſt ſpot, and found their ſituation afterwards extremely well aſcertained in Mr. *Robertſon's* Chart, which I had not then in my poſſeſſion; but in order to avoid their danger the following remark may be of ſome uſe.

Ship *Thames*, the 14th February 1797. Being cloſe in with the Batanta ſhore, I ſteered N. E. and E. N. E. from Pitt's Straits; ſaw rocks under the ſhip's bottom, hauled off South, and ſounded, ground 17 fathoms; immediately let go the anchor and ſwung into 10 fathoms, coral rock. The eaſt point of Batanta bearing Weſt; Jackſon's Iſland S. 6° E. hoiſted out the boats and ſounded; found the rocks bearing Weſt of the ſhip about one mile diſtant, and very irregular ſoundings till they got 6 fathoms, then 5, then 4 and $\frac{1}{2}$ 3; the extent of the ſhoal ſeems to be very limited, and has from 6 to 8 fathoms cloſe round it.

The eaſt point of Batanta appears to be laid down 3 or 4 miles too much to the eaſtward of the firſt point, and the bay between them is filled with ſmall iſlands; it would be adviſeable for ſhips leaving the Straits bound to the eaſtward, as ſoon as they get ſight of Jackſon's Iſland, in order to avoid the ſhoal abovementioned, to ſhape their courſe ſo as paſs it at the diſtance of 4 or 5 miles at fartheſt. In getting under weigh, from the above place, I ſteered out S. E. and E. S. E. and deepened our water till we got into 40 fathoms; then hauled to the N. E. as the wind would permit. On this bank is foul ground for anchoring, with overfalls on every part of it, and a very heavy ſwell at this ſeaſon, ſetting in from the eaſtward, which made the ſhip roll very much and was very unpleaſant.

I believe there was no other hidden dangers in paſſing theſe Straits, at leaſt none have hitherto been diſcovered, excepting thoſe rocks before mentioned, on the bank which lies off the eaſt end of Batanta; therefore what the navigator has chiefly to guard againſt, is the effect of the ſtrong currents in calm weather, which from their various courſes and ſtrong eddies, I muſt repeat are extremely dangerous, owing to the Straits being narrow,

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and the land forming in many points, with a number of inlets and ſmall iſlands, particularly in the eaſtern mouth. This makes it impoſſible to be acquainted with their particular drift, for when ſome of the ſhips were driven in one direction, another part of the fleet was ſet in a different one. While we were on the bank at an anchor, as I have before mentioned, we had many boats off to the fleet, which brought fowls, pumkins, ſome birds of Paradiſe, matts, &c. and were in their demands reaſonable enough. The people who were inhabitants of Salwatty were well acquainted with the Dutch, with whom they had the habit of intercourſe: they were cleanly in perſon, generally well dreſſed, and in every reſpect appeared more civilized than I ſhould have any reaſon to expect in ſuch a place.

## *Of the Entrance into the Pitt's Paſſage to the Eaſtward of Bouro, or between that Iſland and Ceram.*

I PASSED between theſe iſlands in the month of February, 1797, in company with the fleet before mentioned, under Captain *Drummond*, part of which weighed from Amboyna Bay. On the 4th, the wind coming in freſh from the ſea, waited till next morning, when we weighed, and turned out from the harbour, with a moderate breeze from the weſtward: during the courſe of the night we had light winds off the land, and by noon the next day had the extremes of Amboyna bearing from E. by N. to N. E. by N. the land of Bouro from N. W. $\frac{1}{2}$ W. to the ſmall iſland off the S. E. end of it Weſt. From this till noon the next day we experienced a ſtrong ſet to the northward, but afterwards found little or no current all through, the winds variable from North to Weſt, and in general pleaſant ſerene weather. We were in this paſſage 2 or 3 days, plying to windward off Bouro Bay, the appointed rendezvous, and during that time were conſtantly ſtretching acroſs the channel: the paſſage appeared perfectly ſafe and clear of danger, and is between the iſland of Maribo and Bouro, which makes its narroweſt part 7 or 8 leagues: there is a ſmall rock off the north-weſt part of Maribo, conſiderably above water, indeed as plain to be ſeen as the iſland itſelf, and therefore cannot amount to a danger; there are alſo ſeveral other ſmall iſlands to be ſeen lying off the coaſt of Ceram; we worked through the narroweſt part in the night; the entrance of Bouro Bay ſhews itſelf very plain, and cannot be miſtaken. It was there the fleet under Captain *Farquharſon* anchored, after the misfortune of the *Ocean**, while the *Alfred* went to Amboyna, to procure the neceſſary aſſiſtance for the relief of that unfortunate wreck. On the S. E. ſide of the bay there is a bank which ſhews itſelf at low water. It is a chain of coral rocks, which ſtretches from the ſouth-eaſt ſhore, to within a league of the Point *Rouba*, on the larboard hand; the extent of it about 1 $\frac{1}{2}$ mile, lying nearly S. E. and N. W. about 4 boats' length from its extreme you will have 5 or 6 fathoms, a foul coral bottom, and from thence you immediately come into 17 fathoms.

* The *Ocean* was loſt February 1ſt, 1797, near the north-weſt point of *Kalatoa*: this Iſland, called by the Dutch *Old Klaut*, is about 7 leagues in circumference, in latitude 7° 16′ South, and about 122° 2′ Eaſt of London.

INSTRUCTIONS

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# INSTRUCTIONS FOR SAILING FROM THE STRAITS OF NEW GUINEA, TO CHINA, THROUGH THE PACIFIC OCEAN.

By M. HORSBROUGH.

'HAVING entered the Pacific Ocean, by any of the ſtraits to the eaſtward, a ſhip muſt make eaſting in a low latitude ſufficient to weather the north part of Luconia, with a N. E. wind, which blows freſh in that Monſoon, and ſometimes a high ſea. It is beſt to paſs to the eaſtward of the *Pelew* iſlands, as ſome ſhips going to the weſtward of them, have been ſet on the coaſt of Luconia by the ſtrong weſterly current experienced in thoſe ſeas. In the track of going to the eaſtward there are a number of ſmall low iſlands which ought to be paſſed with great caution, when near any of them in the night.

'Before a ſhip keeps away ſhe ought to be in 138° or 140° Eaſt, to make ſure of weathering the PELEW ISLANDS. Their north end lies in 134° 42′; therefore 136° will be a good track to paſs in between them and the CAROLINAS, the weſternmoſt of which Captain *Wilſon* lies in 137° 30′ Eaſt. As a ſhip gets to the northward ſhe will find the winds lay her off to the weſtward; ſtill ſhe ought to keep her wind ſo as to be able to keep a little free by the time ſhe arrives in latitude 15° North, when ſhe may expect ſtrong breezes and a heavy ſea. If you have clear weather, ſteer to get ſight of the northernmoſt BASHEE ISLAND in 21° 6′ North, and 122° 19′ Eaſt; but ſhould the weather be dark and ſqually, you muſt make the iſland of Bottol, called alſo Tabaco-Sima, which is very high. Moſt people after ſeeing this iſland endeavour to get a ſight of the ſouth end of Formoſa; but this is not by any means neceſſary.

A ſhip, by keeping in latitude 21° 20′ North, will ſee Tabaco-Sima, unleſs the weather be very thick; and in this caſe when you get ſight of the iſland you ſhould haul to the ſouthward again, to paſs the *Velarete Rocks* in the parallel before mentioned, becauſe a ſtrong current often ſets to the N. E. in this track, contrary to every expectation. From the winds you need be no way anxious about making your latitude up afterwards, as in nearing the coaſt of China you will find them haul round in your favour.

From Velarete to *Pedra Branca* the meridian diſtance by Mr. George *Robertſon* is very exact; if, however, any doubts ſhould happen, ſtand due Weſt for an hour; and ſhould you in that time ſhoal your water, you are to the eaſtward, but by deepening you may take it for granted you are to the weſtward, and may haul in immediately for the land. The *Tonnang* iſlands, which lie to the weſtward, are remarkable by having a *Rock* 2 or 3 miles off them reſembling a Chineſe boat, with a top-ſail ſet, at a diſtance; but ſo many doubts being entertained about the diſtance between Pedra Branca and the great Lema, it is reaſonable to ſuppoſe that many people have miſtaken this rock for Pedra Branca: however, they no way reſemble each other, Pedra Branca making like a hay-ſtack, when ſeen from the ſouthward or eaſtward. Captain *William Douglas* made 46 miles in running to the Lema, and allowing for a current, thinks the true meridian diſtance 54′. In February and March a ſtrong current may be expected; and in lying to in the night you muſt be cautious

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cautious of driving to the weſtward: a perſon need not make himſelf uneaſy about a pilot; run in without fear till you are mid-channel, between the Lema and Lantao, you will then be heaving to get out, and at an eaſier rate than outſide.

## Extract of the Journal of the Swedish Ship OSTER GOTHLAND, Commanded by Captain GABRIEL GADD; concerning some Rocks, Lying near BOTTOL, or TABACO-SIMA.

"JANUARY 11th, 1800.—At 7 A. M. ſaw the iſland of Bottol, or Tabaco-Sima, from the top-maſt head, bearing W. ¼ S. diſtance 16 or 18 leagues: ſteering W. S. W. wind eaſterly. At 11 A. M. ſaw the ſmall iſland that lies to the eaſtward of Bottol, or Tabaco-Sima's ſouth end—at noon the ſouthernmoſt extreme of Tabaco-Sima in ſight, W. by S.; the ſmall iſlands W. S. W. ¼ W.

Latitude obſerved at Noon 22° 6′ North.

"January 12th.—Until ſunſet ſteered S. W. by S. and E. by N.; find, by ſcarcely altering the land, there is a ſtrong current to the N. E. At 6 P. M. ſouthernmoſt extremes of Tabaco-Sima, W. N. W. ¼ W. weather being hazy, could not aſcertain our diſtance off ſhore. During the night ſtood S. E. by E. under eaſy ſail; at day-light the ſmall iſland in one with Tabaco Sima, bearing N. W. made ſail, and ſteered Weſt. At 10 A. M. ſaw breakers from the deck right a-head, diſtance about 3 miles, hauled up South, and could plainly perceive ſeveral rocks above water from the maſt-head, the higheſt in the middle. This reef we judged to extend about 2 miles, but the breakers formed three diſtinct patches; the middle one being of the greateſt extent, and having the greateſt ſurf on it: keep away S. S. W. and S. W. till noon, when the higheſt breakers were ſtill in ſight from the deck, bearing N. ¼ W. diſtance 6 or 7 miles. The iſland of Formoſa not in ſight.

Latitude obſerved at noon 21° 38′ North.

As we had a good opportunity of meaſuring the difference of longitude between theſe breakers and Pedra Branca, by a time-keeper of *Barraud*, and the ſituation of the latter being well aſcertained, I can with a conſiderable degree of confidence ſay, that their longitude will be found to be 121° 30′ Eaſt of Greenwich, and their latitude 21° 45′ North, allowing Pedra Branca's longitude to be 115° 8′ Eaſt, according to *Robertſon*.

"January 13th.—Steering W. by S. wind Eaſt, at 3 P. M. ſaw the Iſland *Formoſa* bearing N. W. by W. kept the ſhip W. S. W. At 4 P. M. the ſouth end of Tabaco-Sima, and ſouth end of Formoſa N. W. by N. At 6 P. M. extremes of Formoſa a N. W. to N. N. W. The Iſland Bottol Tabaco not in ſight from the deck: very hazy weather.

"For fear *Vela rete*, lying due South from Formoſa, kept S. W. by W. till midnight, then Weſt until day-light; ſo that we paſſed conſiderably to the ſouthward of where the Velarete is laid down. The next morning had ſtrong gales, with much rain, and thick weather, which brought us under a foreſail, and ſtorm ſails for a few hours. Toward noon the weather became clear, and wind moderate; made all ſails; ſaw Formoſa from the deck, bearing N. E. by E. 18 or 20 leagues diſtant.

Latitude obſerved 21° 34′ North.



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*Connected Situation of the Iſland Tabaco-Sima, and the South-eaſt Extreme of Formoſa. From another Journal of the ſame Ship.*

"MONDAY, January 7th, 1797, at ½ paſt 5 A. M. ſaw *Bottol*, or *Tabaco-Sima*, and at noon obſerved, in latitude 21° 97′ the mean of three good obſervations, the ſouthernmoſt point bearing E. ½ N. and *Little Bottol* Eaſt. All the charts place this iſland due Eaſt from Tabaco-Sima, but its poſition is S. S. E. diſtant about 2 miles; and in ſome charts they are placed too far North. Their true ſituations are, *Tabaco-Sima*, latitude 22° 00′, longitude 121° 48′ Eaſt, and Little Bottol 21° 57′ North, diſtant from the ſouth-eaſt point of Formoſa at leaſt 15 leagues. This point is alſo placed erroneouſly: I make its ſituation, determined by a good chronometer, whoſe rate was well aſcertained, and by a good meridian altitude, as follows: latitude 21° 54′ North; longitude 121° Eaſt.

"*Vela rete* lies S. by W. from the ſouth-eaſt point 4, or at moſt 5 leagues; its latitude 21° 40′ North; longitude 120° 58′ Eaſt.

## DIRECTIONS FOR THE PASSAGE TO CHINA, TO THE WESTWARD OF THE PHILIPPINES.

By Mr. HORSBROUGH.

IF the ſeaſon be ſo far advanced as the middle or latter end of February, before a ſhip paſſes Batavia, it is then too late for the Pitt's Paſſage; but that by the Straits of Macaſſar, and along the weſt ſide of the PHILIPPINE ISLANDS, will be the more expeditious, as toward the latter end of February the currents begin to abate in their ſtrength towards the ſouthward, and the northerly winds then change to variable, by which a ſhip will be enabled to get ſpeedily through theſe latter ſtraits.

A ſhip ought to proceed, according to the before mentioned directions, from Batavia to Point Dondo, which having reached, if ſhe finds the currents againſt her, in working out into the Pacific Ocean, ſhe ought, if poſſible, to ſhape a courſe for the eaſt part of *Baſſelan*, in 6° 30′ North, and 122° 38′ Eaſt. In the beginning of March the *Anna* found a current to the weſtward, of 15′ to 20′ *per* day, on which account care muſt be taken to keep to the eaſtward, for fear of being ſet down on the *Tawee* Iſlands, which lie to the S. W. of Sooloo. Should the winds be fixed at Eaſt, or N. E. and the currents ſetting to the weſtward, ſo that a ſhip cannot gain eaſting to fetch Baſſelan, without much loſs of time, it will be beſt to ſtand to the northward, if able to fetch the weſt part of Sooloo, which is about 25 leagues to the weſtward of the eaſt point of Baſſelan. There are many iſlands between Baſſelan and Sooloo, and, it is thought, good channels between moſt of them: if a ſhip makes Sooloo, and has the wind from the eaſtward, ſhe may paſs it on the weſt ſide, to the S. W. of which are many iſlands: the beſt paſſage is on the ſouth ſide of *Patta*, which is high, and lies neareſt to the ſouth ſide of Sooloo. When paſt this iſland, ſteer round the weſt ſide of the ſmall *Jeoumabal*, and, keeping round the weſt end of Sooloo, paſs round the other ſmall iſland

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iſland *Tulian*, then cloſe round Sooloo, where you may get ſupplies in its road, if wanted; ſteer on the eaſt ſides of *Soboken*, *Bolod*, *Hegad*, and *Myenis*; and thence to the N. E. towards the iſlands Saluolackit, which lie to the eaſtward of the fair paſſage for going to the northward. The rock *Balobabo* is to the S. E. of this iſland, about 3 leagues; keep this to the eaſtward, at a good diſtance: the *Griffin's Rocks* bear from *Saluolackit* about N. by E. 2 leagues; they are very dangerous, being covered, and no breakers: when *Sangboy*, or the *Hare's Ears*, bear E. by S. you paſs them to the ſouthward, within any diſtance which may be judged neceſſary from the Magendanao ſhore.

If a ſhip falls in with the north-eaſt end of BASSEELAN, or *Baſilan*, and find no current ſetting to the eaſtward, againſt her, it will be the ſhorteſt method to puſh through the channel between it and Magendanao; there are two iſlands near the eaſt end of the paſſage, one called *Cocao*, neareſt to Baſſeelan, and which is low; the other called *Sibago*, which is partly high, with low lands joining the hills, which makes it appear like two iſlands at a diſtance. The north-eaſt part of Baſſeelan is reported to be ſeen at a ſmall diſtance off, with no ground. It is judged that the paſſage between theſe iſlands, or on either ſide of them, is equally ſafe, having no ſounding about them; but the beſt charts place ſoundings among the iſlands on the Magendanao ſide: the paſſage between Baſſeelan and Cacao Iſland, or between this and Sibago, are the beſt; as after being a little to the weſtward of theſe two iſlands, you will have ſoundings. The Baſſeelan ſide, which ſhould be kept near to, to avoid the *Santa Cruz* Iſlands, which lie off the ſouth-weſt part of Magendanao, has only 3 fathoms, rocks, about 2′ Weſt of the ſouthernmoſt iſland. After being 3 or 4 miles to the weſtward of the iſles of Santa Cruz, you may ſteer to the northward, along the weſt ſide of Magendanao, at any deſired diſtance, but falling with the ſouth part of Baſſeelan, or any of the iſlands to the ſouthward of it: then it will be moſt proper to paſs between it and the iſlands lying off its ſouth ſide. But falling in with the ſouth part of Baſſeelan and the iſlands is perfectly ſafe, with good anchorage all through, after you have got within the iſlands, though it is not ſo wide as the following channel, which the *Anna* paſſed through twice, *viz.* out and home, between *Bylan* and *Tattaran*, on the ſouth ſide, and *Tapeeantana* and *Lamewan*, on the north; then to the weſtward, on the ſouth ſide of *Tamook*, and round the ſouth end of *Mabatta*; then up to the northward, between *Balook* and *Pylas* or *Peelas*. *Bylan* or *Belan*, which is the firſt iſland on the ſouth ſide of the channel, is pretty large, the weſt end forming a high round hill, but the eaſt part is rather low, running ſeveral miles out from the hill. Tapeeantana is low towards the eaſt end, but the weſt part is a regular peaked mount; and *Buboan*, which lies to the northward of this, is very like it, having a mount which much reſembles that on Tapeeantana; they lie very near each other, with ſome ſmall iſlands cloſe to the eaſtward of them. Lamewan and Tattaran are two ſmall but middling high iſlands; the channel between them is 7 or 8 miles wide, but on firſt entering between the eaſt points of Tapeeantana and Belan, it is much wider; theſe points bear from each other North and South. The ſouth-eaſt point of Tapeeantana lies in 6° 15′ North, and 122° 10 Eaſt, the diſtance between the two points being ſuppoſed to be 5 leagues, it will place the eaſt part of Belan in 6° 00′ North.



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In entering between Belan and Tapeeantana, there are no ſoundings till the weſt end of Lamewan bears North and N. by E. then at a few caſts 9 or 10 fathoms, ſoft ground; but we found no leſs than 9 in the channel; if you borrow over towards Tattaran, you have deeper water, but the ground not ſo good. There are two ſmall iſlands to the eaſtward of Tattaran, lying near Belan, and called *Deepoolool*. The Iſland of *Tamook*, which is rather low, lies about 4 or 5 leagues to the N. W. of Lamewan, and when paſt Tattaran, you ſee the *Duo Bolou*, two remarkable hummocks to the weſtward; the channel is between them and Tamook; but ſteer a ſtrait courſe, if the wind will permit, for the *Pylas*, paſſing Tamook at any diſtance thought proper. The ſoundings, when you are a few miles to the weſtward of Lamewan, deepen, and not quite regular, however the ground is moſtly ſand and gravel, and at times a little coral, ſo that you always have the option of anchoring when near the ſouth ſide of Tamook, the ground being moſtly coral, and ſhoaler than at 4 or 5 miles off it. Tamook lies in 6° 28′ North, and 121° 58′ Eaſt. The ſoundings from Lamewan to the ſouth ſide of *Mattaha* are from 25 to 40, but generally 30 to 35 fathoms, if not near the iſlands.

When you are abreaſt of the ſouth point of Mattaha, which lies in 6° 32′ North, and 121° 52′ Eaſt; then ſteer to the northward between Peelas and Balook, which is a very good channel, about 5 miles wide, the ſoundings irregular, 25, 30, and 40 fathoms; and off the ſouth-weſt end of Mataha you have 16 and 18. Keep nearer to the Mattaha than to Peelas in entering the channel, as *Dalrymple's* chart places ſome coral ſpots, with 6 fathoms on them, near the ſouth end of Peelas: Mattaha is a ſmall low iſland, and all the iſlands (except thoſe already mentioned) on the ſouth ſide of Baſſeelan are low; *Balookbalook* is of great length, from North to South, and the north part an entire flat. Peelas is the largeſt of the iſles near Baſſeelan, and runs in a North and South direction; it is all low, only the north end has two hills on it: there is a ſmall iſland on the eaſt ſide of Peelas called *Tangalo*, Balook is in 121° 52′ Eaſt; when paſt it ſteer to the northward, on the eaſt ſide of the Sangboy, and *Teynga*, at any diſtance thought proper; the *Sangboy*, or *Sangbuoy*, (the *Hare's Ears*), are two high iſlands, with ſome low land projecting from the hill, on the great Sangboy, which reſembles a dome. Teynga, the northernmoſt iſland of the Sooloo Archipelago, is a ſmall low iſland in latitude 6° 53′; it bears North from the north part of Peelas, and when to the northward of it 3 or 4 leagues you have no more ſoundings.

If a ſhip is in want of wood and water, ſhe may get great plenty of the former, very conveniently, at any iſland, as ſhe paſſes along; but in the *Anna* they could not find good water on any of them, of which they were in great want, owing to their long detention in the Straits of Macaſſar: a native agreed to go with them, in the long-boat, to *Mazala* River, on Baſſeelan, the ſhip remaining at anchor at Tamook. Mazala River bears about N. N. E. from Tamook, on the eaſt ſide of a bay of that name; cloſe to the eaſt point of the bay is a ſmall high iſland, called *Gowenca*, with another at a little diſtance to the weſtward of it; both of which, being very cloſe to the ſhore, are not perceived to be iſlands, till cloſe to them: it is not adviſable to water here, unleſs neceſſity requires it, as a boat cannot paſs in and out of the river at low water; beſides, the tide is following only once in 24 hours;

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24 hours; and the natives are extremely treacherous, having often attempted and ſometimes ſucceeded in cutting boats off.

The currents about Baſſeelan in July were found ſtrong at times, appearing to be an irregular tide; they (in the *Anna*) experienced tides, from Teynga to Belan; from Teynga to Mattaha; it ſet up and down between Balook and Peelas, but ſtrongeſt to the ſouthward; from Mattaha out to the eaſtward of Tapeeantana, they found it ſet to the S. E. and N. W. but with greater ſtrength to the S. E. the ſtrongeſt was 2½ knots, being near the height of the ſprings at that time.

After leaving Baſſeelan, the firſt two days (going to the ſouthward) they were ſet 73′ to the eaſtward, and 30′ to the northward of account; the current then ſuddenly ſhifted to the weſtward, and ran at the rate of 30′ *per* day, till they made Cape Rivers: ſhe then found a current ſetting out of the Straits of Macaſſar to the eaſtward; but, after entering the Straits, it ſet ſometimes ſtrong to the northward, at others to the ſouthward, and frequently they had no current.

The *Anna*, after leaving Point Dondo, the 1ſt of March, till they made Belan, experienced a conſtant current to the weſtward; the day they made Belan, it changed, and ſet them rapidly to the N. E. ſo much ſo that they could not gain the channel between Belan and Tapeeantana, and were ſet 9 or 10 leagues to the N. E. of Baſſeelan: in this direction it continued ſtrong for two days, at the end of which they got near the north-eaſt end of Baſſeelan, intending to puſh through the channel between it and Magendanao, as they had been ſet ſo far to the northward, but the current ſuddenly changed to S. W. and, having little wind, they were horſed down towards Tapeeantana, in the ſame manner they had been ſet to the N. E. before: they then entered the channel between Belan and Tapeeantana; and after they got to the weſtward of Tattaran they found a kind of tide, which generally ſet to the ſouth-eaſtward, there being only 2 or 3 hours ſlack, when it might have been expected to ſet to the north-weſtward; and then turned and ſet to the ſouth-eaſtward, 6½ or 7 hours, as before: having very light wind, and the tide moſtly againſt them, it occaſioned their being 5 days in getting from Lamewan to Peelas; when between Peelas and Mattaha, they found the tide ſet ſtrong in their favour to the northward, the ſoutherly tide then being weakeſt in February or March.

Leaving the north-weſt end of Baſſeelan, bound to the northward, through the MINDORO SEA, a ſhip ought to keep near the weſt ſide of Magendanao, as far as Point *Balagonan*, in 7° 5′ North, and 122° 26′ Eaſt, as the wind, if freſh, will generally be from the N. E. or eaſtward. *Magendanao* is all high land, and no ſoundings at any conſiderable diſtance from the ſhore.

From Point Balagonan to *Point Naſog*, or *Naſo*, the ſouthern extreme of Panay, the courſe is N. 8° E. 52 leagues, but a more eaſterly courſe ought to be ſteered, if the current be found to ſet to the weſtward; the *Anna* experienced a conſtant S. W. current after leaving Magendanao, till up with Naſog: in this run ſhe ſaw part of *Negros*; but the wind being light, and frequently calms for ſeveral days, the current ſet them to the weſtward, near the *Cagayanes* Iſlands, in ſight of which they were 3 days, when a freſh breeze ſprang up

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up from the eaſtward, and carried them up to Naſog the day following. From this point the current ſet to the northward inclining to the Weſt, till into the China ſea, but not ſtrong. Steering a ſtrait courſe from Balagonan to Naſog, you will (if no eaſterly current) ſee Negros, which is middling high land. The CAGAYANES are two ſmall iſlands, rather low, with ſome very ſmall iſlands and rocks about them; and in the Charts a ſhoal is laid down to the ſouthward of them. They lie in 9° 34′ North, and 121° 6′ Eaſt. POINT NASOG is in 10° 27′ North, and 122° 5′ Eaſt, the point being high land, with two low iſlands on the ſouth-weſt ſide of it.

A *Dry Sand-Bank* bears from Naſog N. 11° W. in latitude 11° 25′ North, and 121° 54′ Eaſt. This bank is very dangerous, being 5 or 6 leagues from Panay, which is more than one-third of the channel between Panay and the *Cuyos* Iſlands, it is tolerably high above water, and may be ſeen from a ſhip's deck at 6 or 7 miles; the channel between the Bank and Panay is equally ſafe with that between it and the Cuyos, the firſt about 5, and the other about 10 leagues wide.

PANAY is all very high land near the ſea, and rugged and mountainous inland; it ſeems to be well peopled and cultivated near the ſhore, having ſeveral towns and churches on it: there is a village about 2 leagues to the northward of Point Naſog, in a bay where a ſhip may get wood and water; but it is uncertain if there be anchorage or no. The *Anna*, when within 2½ or 3 leagues of the ſhore, had no ſoundings, but on the Eaſt ſide of Panay, there is a good bay or harbour, between it and the Iſland *Uſmares*, where a ſhip lies in ſafety, and get ſupplies. The cluſter of iſlands lying to the weſtward of Panay, begins nearly Weſt of Point Naſog, and ſtretches to the northward of the Dry Sand-bank a little way: *Quiniluban* is the northernmoſt of the cluſter, and is judged to bear from the dry ſand W. by N. 11 leagues. Theſe iſlands are moſtly high, and may be ſeen from the deck about 7 leagues; it is ſaid that there is anchorage among them, with ſome ſhoals here and there; the neareſt of them appeared to be 13 or 14 leagues from Panay. Quiniluban is in about 11° 27′ or 28′ north latitude.

From the Dry ſand bank to the weſtward of Panay, the ſouthernmoſt iſland off the ſouth-weſt point of Mindoro, bears N. 39° W. 19 leagues. In running acroſs on this courſe in the night, care is requiſite to avoid the *Caruvaos*, called alſo the *Buffaloes*, two iſlands to the north-weſt of Point *Potol*, one of them very low, the other high; they bear about N. E. by E. from Quiniluban 14 leagues, in latitude about 11° 53′ North.

Obſerve when within 6 or 7 leagues of the iſlands lying near the ſouth-weſt part of Mindoro, to haul to the weſtward, giving them a birth to the eaſtward of 5 leagues, till their ſouthern extreme bears of you S. E. by E. ¼ E. with this bearing you may haul in for Mindoro, being clear to the northward of the reef. In the *Anna*, the 6th April 1793, at ſun ſet, Quiniluban bore W. ¼ S. about 7 leagues; ſteered N. N. W. ¼ W. 23′ keeping the lead going; got 25 fathoms coral; had ſeveral caſts 25 to 22 fathoms; then no ground; lay too till ſun-riſe, when Quiniluban bore S. by E. ¼ E. about 6 leagues, and the ſouthern extreme of the Calamianes, W. ¼ S. about 7 leagues. Allowing for the ſhip's drift, the bank heretofore mentioned ſhould bear from Quiniluban N. ¼ E. about 5 leagues,

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leagues, and from the ſouth end of the Calamianes Eaſt, or E. $\frac{1}{4}$ S. During the night they had a ſtrong N. E. wind, with a weſterly current.

At a ſmall diſtance off the ſouth-weſt end of Mindoro lay 3 or 4 iſlands, the outermoſt of which, called *Ambolon*, is the largeſt, and a reef extends from theſe iſlands in a S. S. E. direction, about 5 miles. In June, 1792, the *Anna* got on this reef, and ſeeing the coral rocks under the ſhip, hove in ſtays, and had ſeveral caſts 9 to 13 fathoms; at that time a low point on the ſouth-weſt end of Mindoro bore N. E. by E. $\frac{1}{4}$ E. extremes of the ſmall iſlands E. N. E. to E. by S. $\frac{3}{4}$ S. the body of the ſouth-weſt iſland E. $\frac{1}{2}$ S. about 3 leagues, and the Calamianes from Weſt to W. S. W. $\frac{3}{4}$ S. latitude obſerved 12° 13′ North. After ſtanding off 4′, tacked, and ſtood on the edge of the reef in 13 fathoms, when the ſouthern extreme of the ſmall iſlands bore E. by S. $\frac{1}{4}$ S. and the ſouth-weſternmoſt E. $\frac{1}{4}$ S. Three and a half leagues from thence ſtood to the N. W. 3 miles, and ſaw rocks under the ſhip, though there appeared to be 15 or 20 fathoms water over them, but before they could heave the lead were off them: they judged them to be at leaſt 4$\frac{1}{2}$ leagues off the ſmall iſlands, the extremes of which bore E. S. E. $\frac{1}{4}$ S. and E. by N. and thoſe of the Calamianes S. W. $\frac{1}{2}$ W. and W. $\frac{3}{4}$ S. about 8 leagues off. Whether the reef about the iſlands is dangerous or no is not poſitively known, but it extends much more to the weſtward than it is laid down in the Charts. The *Anna* ſhoaled going on to it $\frac{1}{2}$ a cable's length, from no ground at 80 fathoms, to 10 fathoms rocks, with holes and deeper water between them; it appeared very ſmooth farther on to the eaſtward, but no rocks above water, nor any ſign of breakers. It was the opinion on board the *Anna*, that there were ſeveral coral ſpots about this reef, and they adviſe not to come nearer the ſmall iſlands than 5 leagues. Theſe iſlands are middling high, the ſouth end of the ſouthernmoſt is in 12° 8′ North, and 121° 18′ Eaſt.

The Appo, or *Apo* Bank is a dangerous ſhoal extending nearly 9 leagues in length, in the ſame direction as the northernmoſt Coaſt of Mindoro S. E. by S. and N. W. by N. It lies almoſt mid-channel between Mindoro and the Calamianes, but rather neareſt the latter; by the beſt accounts its ſouthern extreme lies in 12° 28′ North, and its northern in 12° 48′: there are ſeveral ſmall iſlands on the north-eaſt part of the bank: the *Anna* ſaw 3 of them, which appeared black and rocky, and might be ſeen at 3 leagues from a ſhip's deck; the Iſland of Ambolon was then in ſight from the deck, open to the weſtward of the ſouth-weſt part of Mindoro.

The Calamianes are a cluſter of iſlands to the N. E. of the north point of *Palawan*, two of them *Buſvagan* and *Coron* are of conſiderable extent, but the others are ſmall, and ſurround thoſe two; the diſtance from the eaſternmoſt of theſe iſlands to the weſt ſide of Mindoro, is about 14 or 15 leagues, their northern extreme being in 12° 31′ North, and 120° 00′ Eaſt. Coron lies in 11° 48′ North, and 120° 23′ Eaſt. From the ſouthernmoſt iſland off the ſouth-weſt part of Mindoro. Point Calavite′ bears N. 34° W. 32 leagues, being bound to the northward when the ſouthernmoſt extreme of the ſmall iſles off the ſouth-weſt part of Mindoro bears S. E. by E. $\frac{1}{2}$ E. 5$\frac{1}{2}$ or 6 leagues.

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In hauling in for the Mindoro ſhore, to give a good birth to the ſouth end of the Appo bank, you ought to keep at 3 leagues from Mindoro, and ſhould the wind be from the weſtward, not to exceed 5, as the channel between it and Appo is not more than 7 leagues wide. The weſtern coaſt of Mindoro appears perfectly ſafe, with no ſoundings at 5 miles off ſhore. There will be ſeen ſeveral bays and points in paſſing along; off one of the latter lay two ſmall iſlands, cloſe in ſhore. Mindoro on the weſt ſide is moſtly high land, the points above mentioned excepted, and the ſouth-weſt end, which is a low flat of conſiderable extent near the ſea, with the appearance of ſeveral rivers: off the ſouth-weſt point of this flat, 2 or 3 miles, lies the iſland of Ambolon, from which the reef runs to the ſouth-weſtward.

Over Point Calavité is a high regular mountain, which may be ſeen at a great diſtance at ſea; the point itſelf lies in 13° 28′ North, and 120° 25′ Eaſt. In April the *Anna* had land and ſea-winds on the weſt coaſt of Mindoro, and a ſmall drain of current to the northward.

From Point Calavité to the weſt point of *Iſla de Cabra*, or *Goat Iſland*, the bearing is N. 24° W. 9 leagues. Goat Iſland is low and flat, with a reef which is ſaid to extend near two miles from its north-weſt end; its latitude is 13° 51′ North, and longitude 120° 16′ Eaſt.

Luban, to the S. E. of Goat Iſland, whoſe point it nearly joins, is high in the middle, but the north and ſouth ends are low; the iſland to the ſouthward of Luban is middling high, and *Lamillo*, to the eaſtward, is a regular high mountain.

Point Capones bears from Goat Iſland N. 3° W. 21 leagues: it is a high bluff land, with 5 ſmall iſlands lying off it, called the *Capones*, the outermoſt of which lies 5 miles off the main: the point and iſlands lie in 14° 53′ North, and 120° 13′ Eaſt.

The Coaſt of Luconia, from the ſouthward to Point Capones, forms ſeveral deep bays, of which Manilla and Lubec are the chief, and is remarkably high. The *Anna* ſaw only two iſlands off Capones, but from particular account there are certainly five.

Cape Bolinao bears from Point Capones N. 2° W. 31 leagues, in 16° 25′ North, and 120° 9′ Eaſt. It is low land, deſcending gradually from the level land towards the Cape, where it riſes a little, and forms a bluff point.

The West Coast of Luconia (Luzon) is high and mountainous from the entrance of Manilla Bay to 15° northward, and from thence to 16°, it is of a moderate height. The Iſlands *Two Siſters*, and *Adders* iſland are all low, and lie at a good diſtance off ſhore: a reef is ſaid to extend about a league to the weſtward of the Siſters; and they have a high ſandy beach ſurrounding them. Their latitude is 15° 50′, and that of Adder's iſland 15° 55′ North. All the land hereabout is ſandy, and to appearance barren.

In the *Anna* they paſſed Goat Iſland the 8th April, 1793, and were three days from thence to Cape Bolinao, experiencing land and ſea-winds, with a little northerly current.

In ſtretching off from Cape Bolinao, 11th April, had variable light airs from N. E. to W. N. W. but the following 3 days had a freſh gale at N. E. with dark cloudy weather and

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and a heavy ſea, which continued till their arrival at Macao. On the 17th they paſſed about 25 leagues to the eaſtward of the *Pratas*, and were ſet 30′ to the northward, and as much to the weſtward, between Bolinao and Macao. The Great Ladrone is in 21° 57′, and by mean of 30 ſets of diſtance of Sun and Stars, Eaſt and Weſt, of the Moon, two ſucceſſive years, it lies in 113° 51′ 15″ Eaſt.

## INSTRUCTIONS FOR SAILING BACK FROM CHINA.

By M. HORSBROUGH.

IF a ſhip cannot leave China, before the middle of April, it is better to proceed by the Mindoro Sea and the Straits of Macaſſar, than endeavouring to get down by the ſtraits about Banca, as the currents will be found to ſet ſtrong to the northward about Poolo Aor, and towards Banca in the latter part of April and beginning of May; whereas the currents at this ſeaſon, are not ſtrong in the Mindoro Sea, and in the Straits of Macaſſar are variable.

Having left the Ladrone, ſteer to the S. W. if the wind will permit, till in 18° or 18½° North, to be able, if the wind comes to the weſtward, to make a long ſtretch to the S. E. for ſhould a ſhip be able to get down as far as the *Macclesfield* Shoal, ſhe may then fetch Mindoro on the ſtarboard tack. If the winds ſhould hang to the S. W. it is by no means adviſable, after getting in to the latitude of 15° or 16° North, to loſe time in beating to the ſouth-weſtward: when in that latitude a ſhip ſhould ſtand to the S. E. even although the winds hang ſo much to the ſouthward, that ſhe cannot weather Point Calavité; for as ſhe approaches the weſt coaſt of Luconia, the wind will generally become more favourable, with the land-ſqualls at times. In the *Anna*, when 3 or 4 degrees to the weſtward of the Calamianes, and in latitude 13° North, they had conſtant light airs, from S. S. E. to South: but on getting near Mindoro, they found variable winds, moſtly from the weſtward, with ſome freſh ſqualls from the eaſtward. But if it be the latter end of May, before a ſhip leaves China, then the Paſſage to the eaſtward of the Philippines, and by Dampier's Straits, is certainly the beſt.

If a ſhip makes the north part of the Calamianes with a ſteady breeze from the weſtward, then ſhe ought to puſh through the channel between theſe iſlands and the Appo Bank, which is not leſs than 5 leagues wide. When a ſhip has got ſo far to the ſouthward, as to have the ſouth end of the Calamianes Weſt about 6 leagues, Quiniluban will bear S. by E. or S. S. E. 6 or 7 leagues. If the wind be from the weſtward borrow 4 or 5 leagues of it, to give the Dry Sand-bank in latitude 11° 55′ North, a good birth to the eaſtward of you: when paſt it proceed down the weſt ſide of Panay at what diſtance you pleaſe: if you come between Mindoro and the Appo Bank, keep well to the weſtward of the Mindoro reef. In the latter part of June the *Anna* had land and ſea-winds, on the weſt ſide of Panay, but not regular.



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On leaving Point Naſog in June and July, a ſhip ſhould ſteer to the S. S. W. if the wind will permit, ſo as to make Magendanao well to the ſouthward, ſhould the winds be from the weſtward, but if from the eaſtward, ſteer direct for Point Balagonan. In this ſeaſon the *Anna* had here freſh weſterly winds with rain, which continued till they got to the ſouth-weſtward of Magendanao; the weather then cleared up, and the wind became variable, moſtly from the ſouthward. From Mindoro to Baſſeelan they had a ſmall eaſterly current at times.

If a ſhip ſhould be off the ſouth-weſt end of Magendanao, with a ſteady weſterly wind, and the fore part of the day, it will be beſt to puſh through on the north ſide of Baſſeelan; but this track is not ſo good, in variable light winds, for want of anchorage.

On approaching the Straits of Macaſſar, if the wind be from the weſtward endeavour to fall in with Point Kanneoongan; but if from the eaſtward make Point Dondo from S. to S. E. for the currents often ſet out of the Straits to the N. E. at this ſeaſon.

On the 30th June, 1792, the *Anna* left Baſſeelan; the firſt day had a moderate breeze from S. W. afterwards the wind kept generally between South and E. N. E. till the 7th of July, when they made Celebés it hauled to the weſtward: the firſt 3 days had a current of 33 leagues to the eaſtward, and of 17′ to the northward. The 4th day it ſet 37′ to the weſtward; and on the 5th to the northward of Weſt. The two following days it ſet only 22′ to the N. W. and when they made the land, found it ſetting to the N. E. The winds and currents were very unſettled in the Straits of Macaſſar, and the general winds from S. S. E. to W. S. W. ſometimes no current, at others a ſtrong northerly one, and ſhifting ſuddenly again to the ſouthward: when paſt 2° South, the wind was ſteady from S. and S. E. with a ſmall drain of current to the ſouthward, which enabled them to get ſpeedily round *Poolo Laut*; and 4 days afterwards, they arrived at Batavia, having fine weather between them.

A ſhip leaving China in June, July, or Auguſt, ought to paſs between *Formoſa* and the *Baſhee* iſlands into the Pacific Ocean, then proceed between the *Philippines* and *Pelew* iſlands, where ſhe will find variable winds, but moſtly from the weſtward. When to the ſouthward of the Pelews ſhe muſt keep in 132° or 133° Eaſt, till near the Equator, that ſhe might be ſure of fetching Dampier's Straits. The *Anna*, in the beginning of Auguſt, found the winds variable on the coaſt of New Guinea; for two days it blew freſh from the weſtward, and they had a very heavy ſquall off New Guinea. The Cape of *Good Hope* is in 0° 20′ South, and bears eaſtward of Point Pigot 20 leagues: there is no danger in paſſing between the Cape and Point Pigot in the night, for the latter is 12 leagues to the eaſtward of Vanſittart's Shoal, between which and King William's Iſland is the only dangerous part of *Dampier's Straits*. If a ſhip anchors in the night, it ſhould be with a bower anchor, the ground being indifferent, and the courſe and ſtrength of the tides uncertain. When the winds are from the ſouthward, it is neceſſary, before ſtretching over for Popa, to work up cloſe round *Batanta*, as far as *Fiſher's* Iſland, that you may be able to weather Popa, in caſe of a northerly current, which is common in the ſoutherly Monſoon. When paſſed Popa, borrow towards the *Canary* Iſlands and *Myſol*, then over to *Ceram*, keeping along the northern

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northern ſide of that iſland; then along the north ſide of Bouro, as far as the north-weſt end. From thence ſhape a courſe for the northernmoſt *Toucan Beſſy* Iſland, off the eaſt ſide of Bouton, which bears from the north-weſtward point of Bouro, S. 48° W. 64 leagues. Should the current ſet to the ſouthward, which ſometimes happens, take care not to get to the S. E. of theſe iſlands, which are ſurrounded by ſhoals; give the northernmoſt a birth of 3 leagues. Having got between theſe iſlands and *Bouton*, proceed as before directed, as far as South Iſland, and then ſteer for Middle Iſland in the Straits of Saleyer. The *Anna*, coming this track, found little northerly current, but one of about 20 miles a day to the weſtward: in Auguſt they had a ſtrong S. W. current, along the ſouth-eaſt coaſt of Bouton, and till they got into the Straits of Saleyer. Along the north coaſt of Ceram there are ſaid to be ſoundings in ſome places, and all along the north ſide of Bouro, but only near inſhore. Off the N. W. end of Bouro, is ſaid to run a ſmall ſpit with regular ſoundings to it, till 6 fathoms, which are cloſe-to.

## REMARKS OF CAPTAIN SETON, OF THE HELEN, TO THE NORTWARD OF THE STRAITS OF NEW GUINEA, AND IN DAMPIER'S STRAITS.

OFF the north ſide of *Waygeeo* lie a chain of low iſlands as near in an Eaſt and Weſt direction as I could judge, and at 10 leagues from Waygeeo. Theſe I take to be the *Yowl* Iſlands, but am not certain, as Mr. *Robertſon* places them in his Chart in a different direction, and farther to the northward. The ſouthernmoſt, which I paſſed at 3 miles to the ſouthward, lies in 0° 26′ North, and 130° 57½′ Eaſt (by chronometer from Point Pigot in 131° 18′ Eaſt). They are 6 in number, but the weſternmoſt lies at a conſiderable diſtance from the others, I fancy at leaſt 9 leagues: the other 5 are in all about 5 leagues in length or more; they are environed by a continued chain of rocks and breakers from one end to the other, without the appearance of a paſſage between any of them. There is a very extenſive reef to the northward of theſe iſlands, running Eaſt and Weſt with many rocks in that direction, which I ſaw from the maſt-head, but could not ſee any iſland to the northward of it; the ſouthernmoſt is the 4th from the eaſtward, and the largeſt. There are ſome huts on its weſt ſide, from which ſome of the natives came off, but would not come along ſide: they were Caffres and had nothing but bows and arrows. I got no ground at 80 fathoms 3 miles off ſhore. The paſſage between theſe iſlands and Waygeeo appears clear: had here a ſtrong N. W. current horſing us on to theſe iſlands, with light winds, ſo that I was obliged to tow off with the boats.

5th April at 3 P. M. Steering to the northward, with a light breeze at Eaſt, ſaw breakers a-head, tacked and ſtood to the S. W. At 4 theſe extremes W. N. W. and N. E. 3 or 4 miles off. This ſeems to be a very dangerous ſhoal, lying W. N. W. and E. S. E. about 6 miles long; the eaſt end appeared a dry ſand, but the weſt part



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rocks a very little above water. Had no ground at 100 fathoms 3½ mile due South of a very conſpicuous part of it, which appeared to be nearly its centre, lying in 2° 50′ North, and 131° 40½′ Eaſt *per* chronometer from Point Pigot as above, from which it bears N. 7° E. 64 leagues. I am inclined to think that this reef ſtretches a good way to the northward, as I ſaw from the maſt-head the appearance of breakers running from the weſt end to the N. E. During the night calm, the current ſetting ſtrong to the N. W. towed to the S. W. with the boats, and at day-light ſaw the reef from the top, E. ½ N. From the centre of that reef, to which I gave the name of HELEN'S SHOAL, *Lord North's* Iſland bears N. 75° W. 40 miles.

This iſland, called likewiſe *Neville's* Iſland, is low and flat, and may be ſeen at 4 leagues from a ſhip's deck. It has a very remarkable tree on the middle of it, making like a ſail when firſt ſeen; it lies in an E. S. E. and W. N. W. direction about 2 miles in extent, and ſeems free from ſurrounding danger. I ſaw ſeveral lights on it in the night, which convinces me it is inhabited. Its latitude is 3° 00′ North, and the longitude 131° 4½′ Eaſt, *per* chronometer, from Point Pigot as above.

In coming in the *Helen* from the Pacific Ocean, the beginning of July, from 2° North had the winds from N. E. to E. S. E. when in 1° North, blowing freſh from E. by S. I made the coaſt of New Guinea, a few miles to the Eaſt of the Cape of *Good Hope*, and from thence, all through Dampier's Straits, had the wind from S. by E. to S. W. moſtly from the ſouth-weſtward. Off Point Pigot found the tides very irregular, and ſtrong to the eaſtward, which kept me beating there 3 days. On the evening of the 3d a freſh ſquall ſprang up from E. S. E. and at day-light had *King William's* Iſland W. S. W. when a few leagues off it, had variable winds and a ſtrong tide ſetting to the W. S. W. when within a mile of its ſouth-eaſt end had no ground at 100 fathoms, wind Weſt; tacked and ſtood towards *Vanſittart's* Shoal; when *Auguſta* Iſland bore W. S. W. 5½ miles had 63 fathoms, mud. Ditto, W. by S. 45 fathoms, mud. Ditto, W. ½ S. 4 miles, 17 fathoms, ſand and gravel. Ditto, W. 3½ miles, 12 fathoms, fine gray ſand and ſmall gravel. Then I anchored, and ſent the cutter to ſound, *Pigot* Iſland W. by S. 1½ mile, 5½ fathoms, coral rocks, for ſeveral caſts, then deepened both towards Vanſittart's Shoal and King William's Iſland, but failed towards the former. When at anchor the tides ſet very irregular: the flood which runs about E. N. E. never continued longer than 4 hours, nor exceeded 4½ knots an hour. The ebb run 8 or 10 hours, firſt W. S. W. then S. W. by S. increaſing and decreaſing gradually in ſtrength; its greateſt velocity was 4 knots; at this time it was neap tides; from the marks on the ſhore, the riſe on the ſprings muſt be at leaſt 10 feet.

REMARKS

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## REMARKS ON A PASSAGE MADE IN THE SHIP ADMIRAL POCOCK, FROM MANILLA TO POOLO LAUT, BY THE WAY OF SOOLOO; IN THE MONTHS OF APRIL, MAY, AND JUNE.

" ALTHOUGH we coaſted along the ſouth ſide of *Mindoro*, I can ſay but little concerning it; only that with an offing of 5 leagues, no danger is to be found; nearer we did not go, as the wind was moſtly at N. E. we could not paſs between the northernmoſt iſlands off the eaſt end of Mindoro and it, becauſe we did not keep Mindoro properly aboard; we were therefore obliged to paſs between the two northernmoſt of thoſe iſlands (called CUYO, from the name of the largeſt) which though out of the common track, we nevertheleſs found very ſafe. The ſhores of thoſe we paſſed were very bold, as we had not leſs than 36 fathoms within a mile of the beach: the ſhips in company falling to leeward were obliged to go between the ſouthernmoſt of the Cuyo iſlands, and although they ſaw the rocks under them for ſome time, they got through very ſafe. As we ſtretched to the eaſtward we paſſed the north end of CUYO within 5 leagues; it is of conſiderable extent, and one of the moſt fertile of the Philippine iſlands, producing much rice and other grain. The wind hanging between the North and Eaſt, we endeavoured to gain the ſouth-weſt coaſt of the iſland PANAY (it being a weather ſhore), which we effected: this iſland lies about 25 leagues to the eaſtward of Cuyo, and is much larger; in paſſing by to the ſouthward we did not ſail nearer than 5 or 6 leagues off the ſhore of this coaſt, frequently ſounded, but never got ground; the land in general is high: before we loſt ſight of Panay we ſaw the ſouth-weſt head land of the iſland NEGROS about 15 leagues diſtant, and ſhortly after a long low iſland called *Dugamet**; we were at ſuch a diſtance that I cannot ſay any thing worth notice concerning either of theſe.

" About 28 leagues to the ſouthward of Dugamet we ſaw part of the north-weſt ſide of the iſland MINDANAO, (Magendanao) bearing about N. E. by E. to S. E. 10 or 12 leagues, which ſhore we kept on board with an offing of 3 or 4 leagues (though we could not get ground) till we were abreaſt of *Alimpapan Point*, the ſouth-weſt extreme of the iſland. About 7 leagues to the northward of this point the *Revenge* frigate watered in a ſmall bight, where the ſhore is ſo very bold that ſhe almoſt tailed on the rocks, when ſhe was in anchoring ground. This watering place lies exactly in latitude 7° 25′ North; the people that went on ſhore did not diſcover the leaſt ſign of human inhabitants.

" From Alimpapan point we ſteered for the iſlands that are called the HARE'S EARS, which he ſaw, when we were a little to the ſouthward of the above-mentioned watering place, bearing S. S. W. about 7 leagues; it makes in two low diſtinct hummocks. We left BASILAN (or *Baſſeelan*, a large iſland) about 7 or 8 leagues to the ſouth-eaſtward, and got no ground till we were within 4 leagues of the Hare's Ears, when we got 47 fathoms, ſand; the Hare's Ears bearing W. by S. ¼ S. we had regular ſoundings cloſe in, *viz.* from 47 to 35, 33, 28, 27, 25 fathoms, and ſo on to 13 fathoms, when the Ears bore Weſt 3 miles: our

* This name appears to be wrong; at leaſt no ſuch iſlands is found in the Charts.

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pinnace was ſent to ſound cloſe to the beach of the Hare's Ears and *Peelas*, and found the ſoundings ſafely to decreaſe to 3 fathoms within a piſtol ſhot of it.

" PEELAS is a low iſland terminating to the ſouthward in a point, but the north end has a high hill on it, which makes it remarkable; it bears about E. S. E. of the Hare's Ears, 4 or 5 leagues: between them, mid-channel, is the paſſage to *Sooloo*; you may go to the weſtward of the Hare's Ears without all, but it would not be prudent to ſail nearer than 5 leagues of it, for fear of ſuch an accident as the *Griffin* met with; nor ſhould you be much farther to the weſtward of it than 7 leagues, as there are ſome banks but little known. Between Peelas and the Hare's Ears the tides are ſtrong, and pretty regular, a little North of the Ears is a ſmall iſland called *Teying*; there is a ſmall iſland likewiſe South of the Ears and oppoſite Peelas; and off its weſt end there is a reef of rocks, extending near 2 miles from the ſhore.

" In the channel, I have abovementioned, we had not leſs than 8 fathoms; when we were abreaſt of the middle of Peelas we ſaw the iſland SOOLOO about 16 or 18 leagues diſtant bearing S. S. W. From the time we were within 7 leagues South of Peelas till we were within 4 miles of Sooloo, we had no ground. We anchored on the north ſide of Sooloo, where water and proviſions are to be got; but the ſtrength and irregularity of the tides, together with the foulneſs of the ground, do not encourage any one to come to on that ſide, if they can get round into the road where the Capital is on the weſt ſide of the iſland. In this road you have good anchoring in 9, 10, or 13 fathoms, within a mile of the ſhore. N. W. of the road 3 or 4 miles lie two or three ſmall iſlands which afford ſome ſhelter, but the road is quite open to a S. W. wind. Here you may get good beef at 10 dollars a bullock; and 3, ſometimes 4 fowls for a rupee: it abounds with roots, and all tropical fruits: as the natives are Mahometans there is not a hog on the iſland; but you have vaſt plenty of fiſh in the road. Europeans that go to Sooloo cannot be too careful in their connexions with the people; they are ſo vindictive that they will uſe the *creeſe* on the ſlighteſt affront. Thus far on our paſſage we always found the currents ſetting to the northward.

" From Sooloo we ſailed between South and S. E. till we got clear of all the Sooloo Iſlands, the principal of which are *North* and *South Cubingan*, *Seeaſee*, *Lepac* and *Tapaan*, all of which we left on our ſtarboard hand; theſe are all high, except the two laſt: the Cubingans bore as we paſſed them N. 80° W. and N. 70° W. We continued our courſe to the ſouthward, ſteering for the middle of the ſtraits formed by the Iſland *Borneo* on the Weſt and *Celebés* on the Eaſt; we did not chooſe to go near the Coaſt of Borneo until we were in latitude 2° 24′ North, as the coaſt to the northward is little known. We then ſaw part of it bearing S. W. by W. 6 or 8 leagues; we ſounded, but got no ground. In 1° 34′ north latitude, we made *Three Rocks* very ſcraggy, bearing S. W. ¼ W. and W. N. W. ½ N. about 7 or 8 miles off; the coaſt of Borneo at the ſame time bore from S. by W. ½ W. to S. S. W. ½ W. 8 or 9 leagues. To this time from our leaving Sooloo we had the winds variable and light, the weather in general pleaſant; the current ſtrong to the northward. In 0° 30′ North, we ſaw the north end of Celebés, bearing N. 70° E.

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70° E. and at the ſame time the Coaſt of Borneo N. N. W. ½ W. diſtant 10 or 11 leagues from each; ſounded, but got no ground. We now found the current to ſhift, ſetting ſtrong to the ſouthward.

" In 0° 45′ north latitude is a headland on Borneo called CAPE GYSSELS. In 0° 51′ we ſaw CAPE TAMOAL on Celebés bearing N. 75° E. about 10 leagues: an iſland at the ſame time on that coaſt called the *South Watcher*, bore N. 74° E. 7 or 8 leagues.

" From the time we were firſt in ſight of Celebés till we got into the latitude of 2° 0′ South we ſteered moſtly S. W. and ſometimes to the weſtward, notwithſtanding we found it difficult to quit that coaſt, ſo very ſtrong and conſtant were the eaſterly currents. About 2° 0′ South we loſt ſight of Celebés ſteering W. by N. acroſs the ſtraits, in order to gain the Borneo ſhore, which is quite clear, and has regular ſoundings and tides, with good anchoring ground. In ſtretching over we made the iſlands called THE LITTLE POSTILLIONS *(Paternoſters)*; we ſaw but 4 iſlands, which were the northernmoſt, and appeared very low. We went to the northward of all, and although ſome draughts do not take notice of dangers about theſe iſlands, we ſaw ſeveral very low ſand banks, that cannot be ſeen off the deck above 2 miles, and ſome reefs of rocks: theſe dangers lie to the N. W. of the iſlands about 7 or 8 miles. The Poſtillions ſpread from Eaſt to Weſt 16 leagues, which is conſiderably more than is given them in any draughts.

" After ſailing about 7 leagues Weſt from the weſternmoſt of the Poſtillions, we got ground 30 fathoms, ſand and ſhells; when we had ſhoaled our water to 19 fathoms we ſaw the Coaſt of Borneo bearing from W. S. W. ½ S. to W. N. W. 7 or 8 leagues, the land rather low than otherwiſe. The ſoundings from hence to *Poolo Laut* are very regular and good; from 4 to 10 leagues, the depths being in general 11, 13, 14, 16, 18 fathoms; and you will not deepen it to 20 till you have loſt ſight of the land, unleſs indeed on ſome part of the coaſt where the land is higher than ordinary.

" In 2° 13′ we were abreaſt of a pretty large river called PANAMMOOKAN; its entrance bore W. S. W. ½ S. of us about 6 leagues diſtance in 15 fathoms. In 2° 17′ South we ſaw breakers off the deck bearing S. by E. to S. E. 5 leagues diſtance; at the ſame time a long bank of dry ſand was ſeen from the maſthead, bearing E. ¼ S. 4 or 5 leagues: off the ſouth end of the ſand we ſaw a reef of rocks with breakers on them very high; they appeared to us almoſt joining to the bank. Borneo at this time was bearing W. S. W. 7 leagues, and we were in 17 fathoms: much about the ſame time we ſaw a ſand bearing S. by W. 6 or 7 leagues, the ſouthernmoſt extreme of Borneo in ſight bearing S. W. by S. ſo that I think this ſand is not more than 3 or 4 miles from the Borneo ſhore. By a good obſervation the ſand with breakers lie in latitude 2° 21′ South, about 10 or 11 leagues from the ſhore; its extent, I believe, is ſomething more than a mile.

" In 2° 37′ South we deſcried the north end of Poolo Laut bearing S. W. by S. 10 or 12 leagues; this part of the iſland is by much the higheſt.

" About 15 leagues farther to the ſouthward, we ſaw a ſmall iſland from the maſthead bearing S. S. W. 7 leagues.—In latitude 3° 40′ South lie three ſmall iſlands about 5 leagues to the eaſtward of Poolo Laut; a little to the ſouthward of them are two others

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others about a league aſunder, and not more than 2 or 3 leagues from the Poolo Laut ſhore: we anchored within 2 or 3 leagues of theſe laſt-mentioned iſlands in 16 fathoms, and lay ſome time with a ſtrong ſoutherly wind, and a current ſetting conſtantly to the northward at near 2 knots an hour: and although we had the ſouth-weſt extreme of Borneo in view ſeveral days, we could not get round it, for here it was we loſt our regular tides. Finding all our efforts of getting to the ſouthward vain, it was thought neceſſary to try for a place to recruit our ſtock of water before we perſevered farther. Our draughts lay down a bay in 3° 24′ South, on Poolo Laut, but of which they gave us no account; however, as we were very ſhort of water, we were determined to look in there, and luckily ſucceeded; as ſome one or other coming after us may be reduced to the ſame ſituation, it will not be improper to attempt to deſcribe this bay.

" It is extremely well defended from all winds, but thoſe between North and Eaſt, and ſo extenſive that the navy of England might birth in it: the only precaution neceſſary in going in is to give the point (which bounds the bay to the eaſtward) a birth of $1\frac{1}{2}$ mile, at which diſtance you will round it in 8, 9, or 10 fathoms. When the point is fairly rounded, a ſmall iſland full of trees will preſent itſelf to your view, which is about 4 miles up the bay from the point, and within 2 cables' length of it you have 4 fathoms water: it is ſurrounded with ſhoals extending about 30 or 40 yards from it; nothing is to be got on this iſland, nor on the ſhore near it. The watering and wooding place is over on the weſt ſide of the bay, under the higheſt land, where you may anchor in 6 fathoms, $1\frac{1}{2}$ mile from the ſhore. The ſoundings, from the point I have mentioned quite acroſs to the watering-place, are very regular: the point bears from it E. by S. $\frac{1}{4}$ S. about 5 leagues, and the iſland above deſcribed S. E. 4 leagues. There are numbers of wild hogs, wild deer, and great plenty of oyſters; a few oranges (like thoſe of Seville) were found in the woods. We did not ſee any thing that looked like an habitation. As ſoon as our water was completed (the wind ſtill hanging to the ſouthward) we attempted a paſſage between Poolo Laut and Borneo, hoping we might be able to tide it through, if we found it navigable: we ſucceeded according to our moſt ſanguine expectations, till we got within 3 or 4 leagues of the opening to the ſouthward; there we found ſo many ſhoals that all our perſeverance was to no purpoſe; we got aground on an ugly bank in one of our trials, which, with the irregularity of the tides and the great ſickneſs and mortality that prevailed, made us think of looking for a place of proper refreſhment; none nearer than Sooloo we knew of that could be gained, accordingly we bore away for Sooloo. But before I deſcribe our voyage back, I ſhall ſay ſomething of the inner paſſage between Poolo Laut and Borneo, in which we miſcarried.

" The northernmoſt point of Poolo Laut, which you muſt round to get into the ſtraits, is ſurrounded by a great many rocks, ſand banks, and breakers: however you may come within $\frac{1}{4}$ of a mile of the reef that is off this point, and find $3\frac{1}{2}$ fathoms; the point ſhould not have above one mile birth, for towards the Borneo ſide there is a large mud bank that extends to the firſt point of Borneo (from the entrance, and more than two thirds acroſs the ſtraits, towards the Poolo Laut ſhore), which is quite bold, ſo that you may come within a cable's length of it for 6 or 7 miles up. The Borneo ſide is equally bold, after you

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you are paſt the firſt point, which preſents itſelf when you have fairly entered the ſtraits.—The ſoundings in the mid-channel are ½ 4, 5, and 6 fathoms, mud. The tides were very irregular whilſt we were there; for ſometimes it was flood in the middle of the paſſage, when it was ½ ebb inſhore; it ſometimes ran 16 hours to the northward, and but 4 or 5 to the ſouthward. About 2 miles farther than we went, is a freſh water river on the Borneo ſide; our boats were up and down that ſhore, but did not diſcover a human track.

"On bearing away from Poolo Laut to Sooloo (in Auguſt and September) we did not ſee any thing on the coaſt of Borneo till we were in latitude 2° 20′ South, then we ſaw the ſand I mentioned in our paſſage from Sooloo, which lies near the ſhore. We did not perceive the other dangers becauſe we had the Borneo ſhore more on board. In latitude 1° 35′ South we were abreaſt of *Paſſir River*, up which is a Dutch ſettlement frequented by the Macaſſar people. Hitherto we had the winds, between the South and Eaſt, pretty conſtant and ſtrong. Near the latitude 0° 54′ South off the coaſt of Borneo, runs a flat where we ſhoaled our water from 12 to 5 fathoms, in 1½ mile's drift on ſhore; it lies off a point from which we were about 7 or 8 miles; our boat ſounded 2 miles within the ſhip, but had not leſs than ½ 3 fathoms. After we had paſſed this flat we did not ſee the coaſt of Borneo again until we were in latitude 0° 36′ North; then we deſcried Cape Gyſſels, bearing W. by N. 8 or 9 leagues. Very ſoon after we ſaw great part of Celebés bearing from E. N. E. to S. E. by E. 12 leagues; at the ſame time Cape Gyſſels bore N. W. 8 leagues; no ground at 33 fathoms.

"Ever ſince we were in latitude 1° 0′ South, the current has ſet ſtrong to the ſouthward, and the wind conſtantly been veering from Eaſt to W. by S. it being ſeldom to the northward. We continued in ſight of Borneo and Celebés till we got into 2° 11′ north latitude, when we loſt ſight of the land entirely, and did not ſee it again till we were in latitude 4° 14′ North. Two iſlands were deſcried from the maſt-head bearing north-eaſterly at ſunſet, which was about 2 hours after the eaſternmoſt bore N. by E. and the opening between them bore N. ½ W. 6 or 7 leagues: high land making in three hummocks bore at the ſame time W. by N. 10 leagues. As we had little or no wind that night, we were ſet conſiderably to the weſtward, for at day-light the ſame iſlands were ſeen bearing to the eaſtward of N. E. and a conſiderable tract of land appeared to the weſtward ſtretching from W. by N. to North: that part which lay to the weſtward of N. W. was very high. Sand-banks were likewiſe ſeen growing circular from Weſt to N. W. and North; there was a ſmall one to the ſouthward, with rocks off one end of it, not more than 1½ mile diſtant, though we had no ground at 100 fathoms. When theſe ſands, &c. were deſcried we were in latitude 4° 25′ North by a very good obſervation. It was owing to exceſſive ſtrong weſterly currents and the light winds we met with, that we got over on this ſhore; for, as I have elſewhere obſerved, the eaſt coaſt of Borneo is little known to the northward of the Equator. By a lucky breeze ſpringing up from the S. W. we got clear of this ugly ſituation, but it was two days before we could get out of ſight of the iſlands; and, notwithſtanding we ſteered N. E. and E. N. E. and ſometimes Eaſt, we in 6 days ſaw the ſame land again, ſo ſtrong and conſtant were the currents to the weſtward. Whenever we had wind it generally came



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in ſhort ſqualls, chiefly from the S. W. but we had tedious intervals of calms. Thirteen days after we firſt loſt ſight of the ſands and iſlands, we again ſaw them; ſometimes after ſteering N. E. for three or 4 days we uſed to find by our obſervations that we had loſt perhaps 12 or 14 leagues.

" We were almoſt reduced to a ſtate of deſpair, when happily a ſteady breeze ſprang up from the ſouthward, at which time the land that bore of us 14 days before W. by N. was then bearing N. W. With this long-wiſhed-for breeze we ſteered E. N. E. and having run on that courſe 51 miles, we ſaw a conſiderable tract of land (in ſome reſpect like Sooloo) with ſeveral little iſlands near it. We found upon enquiry that the large iſland is called TAVEE-TAVEE; it bore North 12 or 14 leagues; its ſouth ſide lies in 5° 37′ north latitude, and bears from Sooloo about W. by S. 20 leagues. The iſlands and ſands we ſaw are belonging to a chain of them that ſtretches S. W. from Tavee-tavee to Borneo, in like manner as the Sooloo iſlands ſtretch from Sooloo towards Tavee-tavee.

" From Tavee-tavee we ſtood to the eaſtward until the weſt end of Sooloo bore N. ½ W. (it making like a rump) we then hauled to the northward. It is not ſafe to ſteer to the northward of Eaſt (after Tavee-tavee bears as far to the northward as N. N. W.) until you bring Sooloo to the bearings above mentioned. If it ſhould be ſo thick that Sooloo cannot be ſeen, you muſt ſhut in *Lepac* with *Seeaſee*, two of the ſouthernmoſt Sooloo iſlands; the former is rather low, the other high; the higheſt part of Seeaſee will bear of you N. by W. when Lepac is ſhut in, theſe two iſlands do not ſeem above 3 or 4 miles aſunder. Your courſe when theſe are paſſed is N. N. W. you may continue ſteering ſo till you get in 20 fathoms, which will not be until you are within 4 miles of Sooloo. Then ſteer W. N. W. for the weſt end of the iſland, keeping in 11, 12, or 13 fathoms water; as ſoon as you have rounded the point, giving it 1½ mile birth, you will ſee a little iſland, for which ſteer; if it has a mile birth it is ſufficient (ſhips have gone within it); about 5 miles farther eaſtward is Sooloo Road.

" The body of Sooloo iſland lies in latitnde 5° 50′ North.

## THE VALENTINE'S INSTRUCTIONS, IN 1761, FOR SAILING FROM GOAT ISLAND, NEAR LUCONIA TO SOOLOO, AND FROM THENCE, THROUGH THE STRAITS OF MACASSAR, TO THE STRAITS OF SAPY,

THE ISLAND LUBAN is high, and has ſeveral iſlands and dangers on the eaſt ſide.—GOAT ISLAND lies off its north point.

About S. W. by W. from Luban lies Point *Calavité* on Mindoro, in the latitude of 13° 25′ North. Sailing from it you are to ſteer S. W. about 2 leagues, to paſs the firſt bluff point adjoining to Calavité; and having paſſed it ſome diſtance, you muſt keep 2 leagues to ſea; from thence ſteer S. E. by E. coaſting the ſhore at the ſame diſtance, and having got about 8 leagues from Calavité, you will ſee a large opening in the land of MINDORO, with, in the middle of the opening, the land ſomewhat plain: before you reach it, you perceive a point with two ſmall hills, the outermoſt whereof appears like an iſland; and from

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from it and the point is the beginning of a bay ſtretching 2 leagues from point to point; the point on the ſouth-eaſt ſide of the bay appears likewiſe to terminate in a low iſland, though probably it is not one; from it run out the ſhoals of *Mamburao*, which extend above a league into the ſea.

If it be thought requiſite to coaſt the iſland more minutely, the following directions may be uſeful: the courſe from Point Calavité to PALAON is firſt South $1\frac{1}{2}$ league; then E. by S. 3 leagues; ſailing from thence South $1\frac{1}{2}$ league, and then E. by S. will carry you to Tubili and Mamburao.

TUBILI BAY is very deceitful on account of the banks and ſhoals in it. From thence at the diſtance of 8 leagues S. E. by S. is POINT DONGON in 12° 33′ latitude North, between which are the Rivers of *Mamburao*, *Santa Cruz*, and *Amnay*. To the weſt of Point Dongon at $2\frac{1}{2}$ leagues diſtance lies a ſhoal called the BANKS OF APO, which runs N. E. by N. and S. W. by S. 7 leagues long, and ſcarce 2 broad. Within Point Dongon is the bay of USUANGA, called alſo *Mompong*, from a river of that name near one of the points. This bay is very deceitful and unſafe. The coaſt from it ſtretches S. E. by S. to the *Lake of Ilim*. In the ſame courſe from the entrance of the Bay of Uſuanga to the town of Ililim, is a ſhoal of about 2 leagues in extent. There is a beach of 4 or 5 leagues from the town of Ililim, to the port of *Mangarin*, which port is very ſafe; at 4 leagues diſtance from it is the Lake of Ilim, made between the iſlands of that name, and the main of Mindoro, by a river cloſe to the iſlands, which are three in number, and lie off POINT BURRUNCAN, or the ſouth point of Mindoro, whoſe latitude is 12° 7′ North. The iſlands lie Eaſt and Weſt; the eaſternmoſt is the largeſt; that of Ilim about 4 or 5 leagues in circuit; and cloſe to it on the Weſt is another ſmall one of a league in circumference, called AMBELONG, or *Ambolon:* both are uninhabited, and lie in 12° 42′ North.

The courſe from theſe iſlands is S. E. or to be ſure of clearing the ſhoals, which ſtretch from the eaſternmoſt 7 leagues, it muſt be S. E. by S. Having cleared them, if you ſteer S. E. it will carry you in a ſhort time into ſight of PANAY, which you will coaſt ſteering South as it lies, to POINT NASO, or *Naſog*, in 10° 12′ North, whence the land trenches away to the north-eaſtward. The north-weſt point of Panay is named POTOL, and lies in 11° 22′ North; $2\frac{1}{2}$ leagues to the northward of it are two iſlands named *Carubaos*, and alſo the *Buffaloes*, and to the ſouthward of the point is its bay open to the Weſt, a league wide at the mouth, and 2 in circuit: to the S. W. of Point Potol, cloſe to it, are two iſlands, and two others off Point Naſo.

You may venture 6 leagues off the coaſt, but not much farther, for fear of the rocks and ſhoals, there being many in the offing, though none, as is ſaid, nearer than 8 leagues; but it is moſt eligible to keep within a league or two of the ſhore. The iſland of Panay in general is very high land; but when you come up with low land, you will be within 6 or 7 leagues of Point Naſo, where is good freſh water.

Sailing from Point Naſo you muſt ſteer S. E. which courſe will carry you to NEGROS ISLAND, 12 leagues from Naſo; and keeping within 2 or 3 leagues of it, you will purſue its direction S. S. E. 4 or 5 leagues, and thence ſteer South, which will carry you to POINT



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GALERA*, on *Mindanao*, which is 24 leagues diſtant, and in 7° 55′ latitude. From the Point of Negros, doubling Point Galera to the S. W. by W. at 1 league diſtance, is the *Port of St. Maria*, which is 1 league wide at the mouth, and 3 in circumference.

Sailing from hence S. S. W. along ſhore to POINT ALINPAPAN, which is above 10 leagues diſtant, in 7° 8′, north latitude, you will paſs by many towns and rivers, at ſome of which are harbours. When you are up with Alinpapan point will be ſeen to ſouthward two very high iſlands, named from their appearance the HARE'S EARS, in 6° 45′ latitude. It will be proper to paſs to the weſtward of them, and the other iſlands which ſtretch in a line to *Iolo*, *Solo*, or *Sooloo*, which is very high, and may be ſeen at the ſame time with the Hare's Ears. The port of Soolo is on the weſt ſide of the iſland; oppoſite to the mouth, about a league diſtance, are ſome rocks dry at low water, on which at other times the ſea breaks; there is a good paſſage on either ſide into the harbour. Somewhat to the northward of the port is another iſland, and upon Sooloo, oppoſite to it, a ſmall bay. That part of the iſland on the ſouth ſide of the port is a high mountain divided by low land from the inland mountains, and to the ſouthward of it is a high iſland a little diſtance from the ſouth end of Sooloo. On the north ſide from the ſmall bay above mentioned is a ridge of mountains.

The proper courſe from Sooloo is S. by E. or S. S. E. ſo as to fall in with the north part of CELEBE'S about *Stroomen Point*, to the eaſtward whereof is a town named *Bool*, and in it one Dutch man; near here is a rock, with 3 fathoms, on which an Engliſh ſhip ſtruck about an hour after they weighed from a watering place where they lay in 14 fathoms.

POINT STROOMEN is very remarkable by ſeveral white cliffs on a point like an iſland, which at firſt appeared like great walls. To the weſtward of this is another point named by the natives DONDO, where there is a ſhoal bare at low water, ſtretching near 5 or 6 miles from the point into the ſea.

From the north-weſt point of Celebés it will be proper to ſteer for AERT GYSSENS, or GYSSELS CAPE, on *Borneo*, paſſing to the ſouthward of the *Six Iſlands*, which are dry only at low water. To the S. W. of them ſome draughts lay down *Seven Small Iſlands*, but by the Dutch they are to the north-weſtward of the Six Iſlands †.

The COAST OF BORNEO, from Gyſſels Cape to *Paſſir Brava*, forms a large deep bay, and is ſaid to be a bold high ſhore; from thence the draughts are ſufficiently minute for your guidance, ſailing along ſhore till abreaſt of *Pannamooking*, or *Pannamookan*; you may then ſteer South, which will carry you between POOLO LAUT and the *Triangles* (the Three Alike) in a channel with ſoundings from 15 to 20 fathoms, giving a good birth to ſome ſmall iſlands which lie to the eaſtward of Poolo Laut; the ſame courſe continued will bring you between *Nooſſa Comba*, called alſo *Noo Selima*, and *Rotterdam* Iſlands. A S. E. by S. courſe from Rotterdam Iſland carries you through the channel between the PATER NOSTERS, and Poſtilions, which is about 20 miles wide, into ſight of *Goonong Apy*, though it

* This muſt mean *Point Gorda*.

† The Six Iſlands as well as the Seven Iſlands do not exiſt.

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will be eligible, after paſſing the channel, to keep a point more to the ſouthward if the winds be weſterly.

Goonong-Apy*, a high iſland double-peaked at top, is one of the moſt remarkable volcanoes in the Indies, which lies about 1 league from the north-eaſt part of Sumbawa. It can be ſeen at a diſtance of 24 leagues.

## REMARKS ON THE DAMPIER's STRAITS.

By Captain Robert Williams of the Thames.

THESE ſtraits, ſo called by the Engliſh navigators, and named by the Dutch *Gammi*, or *Gamen*, are bounded to the northward by the Iſland of Waygeeo, and to the ſouthward by the Iſland of Batanta; it may be ſaid they extend from Point Pigot, the ſouth-eaſt part of Waygeeo, to Cape Mabo, the weſtern part of Batanta, and are in diſtance about 23 or 24 leagues, from one point to the other: the dangers hitherto known in them are but inconſiderable. From there being anchorage through the narrow part, I am inclined to conſider them rather a good navigation than otherwiſe, as the bearings to avoid their dangers have been well determined, and pointed out with the greateſt accuracy, in a chart publiſhed by Mr. *Robertſon*, for which thoſe who have to navigate ſhips through this track muſt ever feel very ſenſibly obliged, and greatly admire the ability and correctneſs ſhewn by that gentleman.

I paſſed through theſe ſtraits, on my return from China, 1797, in the *Thames*, with the *Carnatic* in company, and had an opportunity of fully examining the track laid down in Mr. *Robertſon's* chart, as alſo ſome other points in the Pacific Ocean, which have not been aſcertained with equal exactneſs, and to ſhew errors of conſequence which may be expected in an arduous undertaking of that kind.

In coming from the Pacific Ocean, all ſhips bound through theſe ſtraits will, of courſe, ſteer ſo as to make Point Pigot, whoſe ſituation I believe now to be very well determined by the obſervations of Mr. *Brown*, chief ſuper-cargo for the affairs of the honourable Eaſt-India company at Canton, and who has always been conſidered a good and accurate obſerver. He places the Point in, by chronometer, 131° 19′ Eaſt of Greenwich. Captain *Farrington's* chronometer, depending, however, in ſome meaſure, on the log, made it 130° 56′ Eaſt; and my box chronometer, (No. 52, made by *Arnold*, which I have had occaſion to mention often in my remarks on various ſituations before) by obſervations taken cloſe within the point, made it 131° 17′ Eaſt of Greenwich; this differs only two miles from the ſituation aſſigned by Mr. *Brown*. Mr. *Robertſon* in his publication places it in longitude 132° 38′ Eaſt of Greenwich; a difference from Mr. *Brown's* account of 1° 19′, and of 1° 17′ from my own obſervations: conſequently I conſider the poſition of Point Pigot, given by the former gentleman, as being 68 miles too far to the eaſtward.

* *Goonong Apy*, or *Appee*, are two Malay words, which mean "Burning Mountain."

I would

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I would recommend, if coming near up with Point Pigot in the night, to keep under ſuch ſail as may prevent getting to the weſtward of it before morning, as the currents here run very uncertain, and are ſufficiently ſtrong to horſe a ſhip conſiderably out of the fair way, if not towards the ſhoal that lies off the eaſt point of Batanta, and extends almoſt round to *Foul* Iſland. As there can be no certainty of keeping the latitude wiſhed for, under the influence of a ſet whoſe courſe you cannot poſſibly be acquainted with, and though the eaſtern part of this ſhoal lies more in the way of ſhips bound through the Pitt's Straits, than thoſe who are to paſs Dampier's, it will be prudent to keep the lead going: and if you ſhould be ſet into ſoundings, come to with a light anchor, and wait for day-light, ſince it is impoſſible to aſcertain with certainty, by the ground, your exact poſition.

Having paſſed to the weſtward of Point Pigot, and in latitude 0° 30′ South, you will ſee *King William's* and *Hum* Iſlands, bearing Weſt, and lying directly in the entrance of the ſtraits: they at firſt make like 3 iſlands, part of the ſtarboard ſhore appearing as one; but as you enter further in the mouth of the ſtraits, they form themſelves very diſtinctly. In ſteering directly for theſe iſlands, and which I think is the beſt plan, you will ſoon diſcover two other ſmall iſlands, which appear like two clumps of half-drowned trees, about a mile diſtant from each other; one of theſe is called, in ſome ſhips' journals, *Mansfield* Iſland, the other I know of no name for, and probably they may have been conſidered as one iſland; both theſe you leave on the larboard hand, as alſo Foul Iſland, which will ſhortly afterwards ſhew itſelf within half a point of the ſame bearings, *viz.* about S. W. by W. and you will ſee nearly at the ſame time *Auguſta* and *Pigeon* Iſlands from the maſt-head bearing W. by S. ½ S. or W. S. W. off theſe and Foul Iſland lie the dangers that are to be apprehended in paſſing this part of the Straits; to avoid them in coming through in the *Thames*, I kept King William's Iſland due Weſt, and muſt obſerve that it is very remarkable, from a *white patch* on the eaſtern end of it that appears like a ſail. I ſteered on that courſe till Foul Iſland bore S. W. by S. diſtance from the *Thames* at that time about 9, 10, or 11 miles; and Pigeon Iſland bore W. S. W. I then hauled S. W. by W. ½ W. keeping Pigeon Iſland juſt open on the ſtarboard bow, till Foul Iſland bore S. E. by E. when I was directly off the extreme point of the ſhoal, to the northward, that lies off Foul Iſland. I then ſteered S. W. ¾ S. keeping at a diſtance of 3 or 3½ miles from Pigeon Iſland, which courſe led me clear of all danger on that ſide, ſteering on in that direction as ſoon as Auguſta or Pigeon Iſland bore Weſt. I had 40 fathoms water, over a coral rocky bottom, ſhoaling as faſt as we could heave the lead, from that depth to 15 fathoms, when I anchored, and had the following bearings:—

The body of Foul Iſland S. E. by E. 3 or 4 miles; the extremes of Batanta to the eaſtward E. by S.; Mansfield Iſland E. by S. ½ S.; the extremes of Waygeeo to the N. E. N. E. ¾ E. diſtance 12 or 14 leagues; the extremes of King William's Iſland, to the weſtward, W. by N. ½ N. Auguſta Iſland W. ½ N. diſtance 3 or 4 miles; the extremes of Batanta to the S. W.—S. W. ½ W. and the long range of iſlands to the weſtward of King William's Iſland, a W. ½ S. to W. by N. diſtance 10 or 11 leagues: the *Carnatic* alſo anchored within ½ a mile of the *Thames*, in 12 fathoms; ſhe had her cable cut with the rocks during the night, which was very fine and ſerene, and drove over the ſhoal water into 45 fathoms.

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fathoms. Our anchorage in this place, where we remained 18 hours, is far from being ſafe, the ground being extremely foul. We found the current ſetting almoſt all the time to the S. W. at the rate of 2½ knots to 3—6 *per* hour; but of this I ſhall ſpeak more at length at the end of theſe remarks.

The *Anna*, Captain *John Horne*, paſſed theſe Straits on the 26th of July 1793, and anchored in 10 fathoms, coral rock, with Foul Iſland bearing E. S. E. ¾ S. King William's Iſland N. W. ¼ N. and Pigeon Iſland W. ¼ N. The *Pitt* alſo paſſed them 1762, and had leaſt water 8 fathoms, with Pigeon W. ½ S. diſtance 2½ miles, and then deepened immediately afterwards to 28 fathoms. The journal of that ſhip remarks the deep water to lie over a ſoft bottom, and the ſhoal water over a rocky bottom. The *Mansfield* paſſed through them on her outward bound voyage on the 3d of January 1781, and was to the weſtward of theſe iſlands in a ½ 6 fathoms; ſhe immediately anchored, but before ſhe brought up, ſwung into 17 fathoms, and had the following bearings.

The Iſland of Batanta from S. 76° E. to S. 42° W. Foul Iſland from S. 78° 30′ E. to S. 81° 20′ E. The body of the ſmall Iſland S. 82° 15′ E. Pigeon Iſland from N. 57° E. to N. 47° 40′ E. diſtance 4 miles. King William's Iſland from N. 48° 5′ E. to N. 12° 45′ W. the remarkable white ſpot on ditto, N. 39° 30′ E. Auguſta Iſland from N. 18° 10′ E. to N. 3° 40′ E. diſtance 2½ miles; ſhe found a foul rocky bottom, and after breaking her meſſenger 3 or 4 times, with great difficulty purchaſed their anchor.

A ſtranger in paſſing between theſe iſlands, probably may be alarmed at ſhoaling the water ſo faſt, as it is invariably the caſe, but he need not be under any apprehenſion, for it will quickly deepen again, and I have no heſitation in ſaying, that if he follows the track which I have pointed out, he will go perfectly ſafe. I had my boats out, and found no ſhoaler water than ½ 6, or 7 fathoms, till within one mile of Pigeon Iſland.

On firing a gun, and hoiſting St. George's Jack at the maſt-head, ſeveral canoes came off to the ſhip; they contained a mixture of the people from Papua or New Guinea, as well as thoſe from Waygeeo, who appeared more civilized than the former. The Papua men were extremely frightful, poor, and dirty, and eat up with diſeaſe; they brought ſome damaged birds of Paradiſe, with a few mats, and pumpkins, but nothing elſe of any conſequence, and for what they had charged extravagantly dear.

Being to the weſtward of Pigeon and Auguſta Iſlands you will find the ſtraits become very wide; and the only danger that is at preſent known hereabouts, is the Auguſta Shoal on which is laid 4½ fathoms water. I paſſed within 1½ mile to the ſouthward of it, when the ſea was rolling over it very high; it blew freſh from the S. E. and its appearance indicates there muſt be very little water indeed over ſome parts of it; I regret not having had the opportunity of examining this danger thoroughly: it appeared about a mile in length, and lies from Cape Mabo N. ½ E. to N. by E. ½ E. from Fiſher's Iſland N. by E. ½ E. and from Pigeon Iſland W. by S. diſtance 16 or 17 miles. At noon I obſerved in latitude 0° 42′ South, when the body of the ſhoal bore from the *Thames* N. E. by N. which makes its latitude 0° 41′ South. At the ſame time Fiſher's Iſland bore S. by W. and Cape Mabo S. ½ W. In turning out with a contrary wind, do not bring Pigeon Iſland

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Iſland to bear to the eaſtward of E. N. E. till Cape Mabo bears South, and you cannot come nigh it.

I ſhall conclude my remarks on theſe ſtraits, by giving it as my opinion, that the navigation through them is infinitely ſuperior to that of the Pitt's, which I went through on the ſame voyage outward bound; and I am perſuaded that thoſe who have once paſſed both, will never afterwards attempt to riſk the ſafety of their ſhips, expoſing themſelves to ſtrong currents, where there is little or no anchorage, when they may avoid the one in a great degree, and gain the other by going the Dampier's Paſſage; particularly on an outward bound voyage, when they will conſequently be more to windward on entering the Pacific Ocean, and have leſs difficulty in clearing the coaſt of New Guinea.

## *Currents in Dampier's Straits.*

THESE currents will be found extremely irregular, both in point of courſe and ſtrength; they will, as in every other ſituation hereabouts, vary in each particular, according to the ſhifting of the different Monſoons, running with greater velocity to the weſtward in the eaſtern Monſoon, and to the eaſtward in the weſtern Monſoon; they alſo will be weaker or ſtronger in proportion to the ſtrength of the wind, and this may be naturally expected, for in the ſame manner as the coaleſced operation of attraction, between the Sun, Moon, and Earth, produces its effects on the general tides of the Ocean, ſo the wind which blows nearly fromany one point, for a length of time, muſt produce by protruſion currents on the ſame element; and thoſe currents occaſioned by ſuch protruſion, will be found generally ſetting in the ſame direction as the wind; except when they may be diverted from their primitive courſe, by any obſtruction from rocks, ſhoals, or land, projecting in ſuch various directions, as is ſo often met with in theſe ſeas, and then theſe ſecondary cauſes will have likewiſe their natural effect on its firſt courſe; they will alſo be found ſetting ſtrongeſt at the full and change of the Moon, becauſe then they will be aſſiſted in their velocity by the ſuperior powers of attraction, which that planet is known to poſſeſs, at this period, on the tides in general. But without ſeeking for any farther cauſe for the effect of theſe currents, I ſhall ſtate, for the inſtruction of the navigator, how I met them, and how they have been found to exiſt from the information of other ſhips' journals.

It was on the 10th of Auguſt 1797, when I firſt entered theſe ſtraits from the Pacific Ocean, one of the months when the eaſtern Monſoon is blowing to the ſouthward of the Line, and I found the current ſetting weakly to the weſtward. I had two or three days before light variable winds: on the 11th I anchored in the narrow part of them, and found the current ſetting S. W. at the rate of 2K. 6F. and 3K. 4F. *per* hour; the Moon was then twenty days old, and conſequently at the period when her powers of attraction were at the weakeſt. During my ſtay at the anchorage mentioned above (which was for 18 hours) the current ſet almoſt the whole time to the S. W. the ſhip tending only once to the eaſtward, when it ſet E. N. E. at 1 mile *per* hour, for about 3 hours, and then changed again to the weſtward;

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weſtward; it ran with greater velocity near the reefs (which is the caſe in all ſituations) than in the fair channel, and was attended with very loud riplings in the night.

The *Carnatic*, who had her cable cut with the rocks, and drove into 45 fathoms water towards the ſtream off Foul Iſland, had it ſetting to the weſtward, at the rate of 5 knots, and our boat in coming off from Foul Iſland could not fetch the ſhip from the ſtrength of the ſtream, but fortunately got on board the *Carnatic*.

Captain *Horn* in the *Anna*, who went through them the 26th of July 1793, which is in the ſame Monſoon, found the currents ſetting nearly in the ſame direction as I have deſcribed; and the *Mansfield*, Captain *Fraſer*, in the month of January, when the oppoſite Monſoon is at its height, found them ſetting E. N. E. and N. E. from 3 knots to 1 *per* hour; they appeared more regular than in the eaſtern Monſoon, but ſetting ſtrongeſt to the eaſtward: ſhe once had them ſetting E. by N. and E. N. E. for 4 hours, when they changed to the S. W. for 3, and then back to E. by N. till the ſhip weighed, which was 6 or 7 hours after.

The above obſervations will in ſome degree prove, that the currents in theſe ſtraits generally run as I have deſcribed them; and other journals which I have examined on the ſame ſubject, corroborate and eſtabliſh the fact: but this, like all other general rules, muſt be liable to ſome exceptions, and it becomes ſufficient to have a knowledge of their general courſe, though we ſhould not be acquainted with the ſeveral deviations occaſioned by various and intricate cauſes.

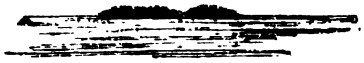
## Of the SMALL ISLANDS in the PACIFIC OCEAN, To the NORTHWARD of the STRAITS of NEW GUINEA;

Explored by Captain Robert Williams of the Thames;

*Viz.*

1° Poolo Anna, 2° Poolo Mariere, 3° Lord North's, and 4° St. David's Islands.

### 1° *Poolo Anna.*



Is ſituated in latitude 4° 39′ North, and longitude 132° 01′ 15″ Eaſt of Greenwich, taken from the poop of the Honourable Company's ſhip *Thames*, who made it in company with the *Carnatic*, in the evening of the 3d of Auguſt 1797, it bore South, diſtance 18 or 20 miles, is covered with trees, and ſurrounded by breakers.

The only account of this iſland, that I have ever ſeen in print, is publiſhed by Mr. *George Robertſon*, in his Memoir of a Chart of the China Sea, including the Philippine, Molucca, and Banda Iſlands, with part of the coaſt of New Holland and New Guinea.



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In that memoir he ſays "the Iſland of *Poolo Anna* is the ſtandard for the other ſmall iſlands that are ſituated near it;" a circumſtance which requires that its ſituation ſhould be well determined, in order to avoid all thoſe dangers which would accrue, not only from its own erroneous poſition, but likewiſe from the improper one of all thoſe iſlands, whoſe relative diſtance and bearing are taken from it. I have therefore compared the different accounts, both of the latitude and longitude of Poolo Anna, from the authorities given by Mr. *Robertſon*, with thoſe of a more recent date, which I have collected, and am in poſſeſſion of, as well as with my own obſervations; and I hope theſe will acquaint the navigator with the true poſition of that iſlot.

Mr. *Robertſon* ſays it was ſeen by the *Carnarvon*, *Warwick*, and *Princeſs Auguſta*, returning from China in 1761, who all nearly agree in the latitude.

The *Princeſs Auguſta* fell in with it in the night, and the *Carnarvon* was within 200 yards of being on ſhore amongſt the breakers; they deſcribe it to be a ſmall, low, woody iſland, lying in latitude by obſervation (allowing for the variation of the Sun's declination) 4° 34′ North: they remark that breakers run out from the ſouth end of it 2 miles: they alſo take notice of the *Carnarvon's* ſeeing another iſland to the S. E. that ſame night, which was *Poolo Mariere*. It was afterwards ſeen in 1769, by the *Ponſborne*, and by the ſhip *Governor* in 1763. The *True Briton* made it in 1785, from whoſe account Mr. *Roberiſon* has placed it in his Chart. All theſe ſhips nearly agree as to the parallel of latitude in which it lies, but the only one that takes notice of its meridian, is the *True Briton*, who places it, by a celeſtial obſervation, in 130° 23′ Eaſt of Greenwich, and, as I am convinced, there is an error in that longitude of at leaſt 1° 30′ to the weſtward. It is probable the obſervation which ſo placed it muſt have been taken ſome time previous to their ſeeing the iſland, and ſo brought on, a mode which in ſeas ſo much affected by the currents exiſting there, cannot be correct, but muſt always contain great error.

Captain *Wall*, in the *Duke of Bucclengh*, in company with the *Boddam* and *Lord Macartney*, made Poolo Anna in 1794, in his paſſage to China; he places it, by obſervation of the ſame day at noon, in latitude 4° 38′ North, and longitude, by a box chronometer of Arnold's, 132° 03′ 30″ Eaſt of Greenwich; he afterwards ſaw Poolo Mariere, whoſe relative ſituation with that of Poolo Anna he makes to correſpond in the difference of their meridians as laid down in Mr. *Robertſon's* Chart, which his chronometer ſhewed to be 20 miles to the eaſtward: of courſe Poolo Mariere's longitude is 132° 23′ 30″ Eaſt, which ſerves to eſtabliſh more fully the ſituation of both.

Captain *Jackſon*, in the *Carnatic*, in 1794, alſo made Poolo Mariere, and by his obſervation and dead reckoning, and allowing the difference of meridian between that and Poolo Anna, he places it (Poolo Anna) by the firſt mode in 132° 14′ Eaſt, and by the latter 132° 03′ Eaſt, and latitude 4° 39′ North.

On the 3d of Auguſt 1797, I made Poolo Anna, in the *Thames*, in company with the *Carnatic*, at ſun ſet, and intended, if I had not ſeen it, to have wore and ſtood to the northward for the night, as I wiſhed very much for the ſake of information to get ſight of it; at this time we had a freſh gale from the S. W. which increaſed during the night, when the

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the iſland bore South of us 7 leagues, made latitude 5° 01′ North, which places it in latitude 4° 40′ North, and longitude (by *Arnold's* box chronometer No. 52, whoſe rate I was well acquainted with) 131° 59′ Eaſt of Greenwich.

*Comparative View of the Accounts ſhewn by* Mr. ROBERTSON, *with thoſe by Captain* ROBERT WILLIAMS, *of the Latitude and Longitude of Poolo Anna.*

| | | | |
|---|---|---|---|
| 1761. | *Princeſs Auguſta,* Latitude | 4° 34′ North | Longitude. |
| 1785. | *True Briton,* - - - - - - | 4 38 | Longitude by obſervation 130° 23′ E. |
| 1769. | *Ponſborne,* - - - - - - | 4 37 | Longitude. |
| 1763. | *Governor,* - - - - - - | 4 35 | Longitude. |
| | | 4) 18 24 | |
| | Mean | 4 36 | Longitude 130° 23′ |

| | | | | |
|---|---|---|---|---|
| | *Duke of Buccleugh,* Latitude | 4° 38′ N. Long. | 132° 03′ 30″ | E. by chronometer. |
| 1794. | *Carnatic,* - - - - - - | 4 39 | 132 14 | E. by lunar obſervation. |
| 1794. | Do. - - - - - - - - | | 132 03 | E. by account. |
| 1797. | *Thames,* - - - - - - | 4 40 | 131 59 | E. by chronometer. |
| | Mean | 4 39 North. | 132 4 52 | Mean. |

Poolo Anna's latitude ſeems to be by the above obſervations well determined; its longitude by the mean of Captain *Wall's* chronometer, and my own, appears to be 132° 01′ 15″ Eaſt, which is 1° 38′ to the eaſtward of Mr. *Robertſon's* account, taken from the *True Briton's* obſervations, and which I am perſuaded are ſufficiently near the truth, to navigate in ſafety. This very ſmall iſland is very dangerous to be made in the night, and is inhabited.

2° *Poolo Mariere.*

Poolo Mariere E. by N. ½ N. and E. by S. ½ S.

THIS iſland, firſt ſeen by the *Carnarvon,* Captain *Hutchinſon,* in September 1761, and afterwards by the *Ponſborne,* in February 1769, is placed by Captain *Payne* in latitude 4° 16′ North. It has been ſeen ſince by ſeveral of the company's ſhips, in their paſſage to and from China. Captain *Foulkes,* in the *Aſia,* with the *Raymond* and *Duke of*



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*Montroſs* in company, made it on the 4th of June 1789. It is deſcribed in the *Aſia's* journal as a ſmall iſland, about 1 mile in length, inhabited by people who reſemble in their appearance the Malays. They came off in their canoes to beg proviſions; were ſeemingly very poor, and brought nothing with them but fiſhing lines and hooks, which were made of a kind of graſs and horn: from the appearance of the iſland it cannot afford much to ſubſiſt on.

By the obſervation in this journal they call the latitude 4° 19′ North, and longitude Eaſt of Greenwich 132° 19′, by dead reckoning brought on from their departure from the iſland of -------- which they ſaw four days before.

Captain *Wall* alſo made this iſland in the *Duke of Buccleugh*, in his paſſage to China, in 1794; his obſervation for the latitude places it in 4° 20′ North, and longitude by *Arnold's* box chronometer 120° 23′ Eaſt of Greenwich; and bearing from Poolo Anna, S. 51° E. diſtant 35 miles.

On the 25th December 1794, Captain *Jackſon*, in the *Carnatic*, at 7 A. M. made it bearing E. N. E.; at noon it bore N. by E. diſtance 18 or 20 miles. His latitude at that time, by obſervation, was 4° North, which places the iſland in 4° 18′, and longitude, by obſervation, 132° 34′ Eaſt, which is 11 to the eaſtward of Captain *Wall's* account. Captain *Jackſon* made its longitude by dead reckoning 132° 29′, and by his chronometer 132° 02′. Though theſe three methods of determining Captain *Jackſon's* account of his longitude, differ in ſome degree, yet, by taking the mean of them, it comes ſo near the poſition, in which Captain *Wall's* obſervations has placed it, that I conſider it a great proof in helping to eſtabliſh the true ſituation of the iſland. My chronometer made by *Arnold*, No. 52, and whoſe rate I am well acquainted with, allowing Poolo Mariere to lie 20 miles to the eaſtward of Poolo Anna, places Poolo Mariere, in longitude 132° 19′ Eaſt of Greenwich, a difference from Captain *Wall's* watch of only 4 miles; I have conſequently taken the mean of theſe two watches, as the adopted longitude of that iſland, and I am perfectly ſatisfied it will be found very near the truth.

By the *Ponſborn's* account it is deſcribed as a very low iſland, covered with trees, and about 3 or 4 miles in length, and from its being inhabited, I think the ſize is more likely to be correct in that account than in the *Aſia's*, which calls it only about a mile long: however, all the information that I have, clearly makes it neceſſary that it ſhould be approached with caution, nor would I ever, when near its ſituation, paſs its latitude in the night.

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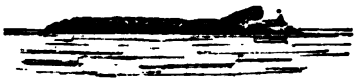
*An Account of the Reckonings and Obſervations of the different Ships which have been uſed by me for eſtabliſhing the true poſition of Poolo Mariere.*

| | | | | | |
|---|---|---|---|---|---|
| *Ponſborne*, in | 1761 | Lat. N. 4° 16′ | Longitude, | | |
| *Aſia*, | 1789 | 4 19 | by dead reckoning, | 132° 19′ E. | |
| *Duke of Buccleugh*, | 1794 | 4 20 | by chronometer, | 132 23 | |
| *Carnatic*, | 1794 | 4 18 | by obſervation, | 132 34 | 132 21 40 |
| | | | by chronometer, | 132 02 | |
| | | | by dead reckoning, | 132 29 | |
| | | | | 3) 397 05 | |
| | | | | 132 21 40 | |
| *Thames*, in 1797, by relative ſituation of Poolo Anna, Arnold's chronometer, | | | | 132 19 | |
| | | | | 4) 529 22 40 | |

Mean latitude, 4° 18′ North. Mean longitude 132 20 40 East of Greenwich.

## 3° *Lord North's Iſland.*



LORD NORTH'S ISLAND, called in the Aſia's journal NEVILLE'S ISLAND, and named after a man on board the *Raymond*, is deſcribed as a ſmall low iſland, about 1½ mile in length, having inhabitants, ſome of whom attempted in their canoes to fetch the ſhip, but were prevented by the night coming on. It is placed by the obſervation of that ſhip in latitude 3° 7′ North, and 73 miles to the weſtward of Poolo Mariere, which iſland they ſaw on the ſecond day, after leaving Lord North's iſland. They made that quantity of meridional diſtance home to the iſland, which places its longitude in 131° 08′ Eaſt of Greenwich, and bearing from Poolo Mariere, S. 46° W. diſtant 102 miles. The *Duke of Montroſs*, who was in company with the *Aſia*, makes the latitude 3° 06′ North. It was ſeen by the *Lord North* in January 1781, who named it; and by Captain *Douglas* in the *Nootka*, in a voyage to the north-weſt coaſt of America, who makes it in latitude 3° 11′ North. Neither of theſe ſhips mention any thing as to its meridian. It is deſcribed by Captain *Douglas* as very low, and about three miles in circumference.

*Aſia's*

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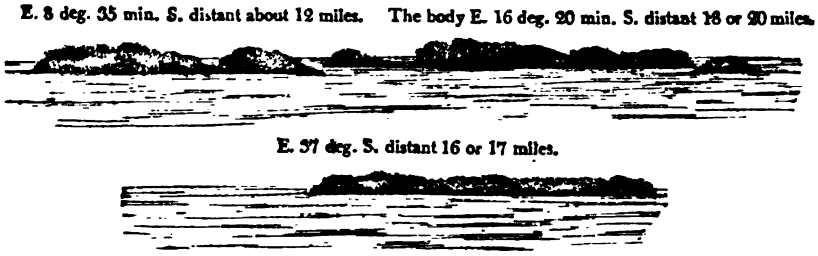
| | | | | |
|---|---|---|---|---|
| *Aſia's* account of its Latitude, | 3° 07′ N. | Longitude by M. D. from *Lord North's* | | |
| *Duke of Montroſe's* Do. | 3 06 | Iſland to Poolo Mariere, - - | 131° 08′ East. | |
| *Nootka's* Do. | 3 11 | | | |
| | 3) 9 24 | | | |
| Mean Latitude | 3 8 North. | | | |

## 4° *The St. David's Iſlands.*




THE above appearances were taken from the maſt-head of the *Thames*, when the iſlands bore as *per* bearings. We were looking ſtrictly out for them, when they were diſcovered from the deck, bearing from S. S. W. to S. W. by S. about ½ paſt 11 o'clock on the 5th of Auguſt, 1797, in a fine ſerene moon-light night; at that time we were ſteering by the wind about S. W. by S. I judged our diſtance from the neareſt iſland could not be more than 3 or 4 miles, conſequently bore up to the weſtward, as it was inclinable to be calm, and I was fearful if we had any ſet of a current, it might drift us too near them. I afterwards ſteered with a light breeze from S. E. ſo as to round them, and about 3 or 4 leagues diſtance; at the time we made them, the night prevented us from ſeeing more than two iſlands; but at break of day, when we had got to the weſtward of them, at the diſtance of 18 or 20 miles, we very diſtinctly ſaw a third. When the above views were taken of them from the maſt-head, they appeared diſtinctly ſeparate, but from the deck, like trees half under water, and their baſe could not be ſeen; which gives me reaſon to think we were at a greater diſtance from them than we at firſt imagined. The ſmalleſt in extent appeared to be the higheſt, and all of them like Poolo Anna, and the different iſlands ſeen in theſe ſeas covered with trees.

The only account I have ever ſeen of them, is that given by Mr. *Robertſon*, who ſays "they were ſeen by the *Warwick* in February, 1761, and are placed by the obſervation of that ſhip in 1° 10′ North, and 84 miles eaſtward of the north part of New Guinea, which they had loſt ſight of only a day and a half." How that account agrees with my obſervations is ſhewn in the comparative ſtate of them.

By a good meridian obſervation, made on the day previous to the iſlands being ſeen, as well as at the ſubſequent noon, and both reduced to the time their bearings were taken, at which period the different obſervations gave the ſame latitude. I conſider *St. David's* iſlands to lie in from 55 miles North to 1° 00′ North: their longitude, by obſervation of

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of the chronometer, taken in ſight of the iſlands, and at the exact time with their bearings, muſt be from 134° 17′ to 134° 25′ Eaſt of Greenwich, which gives their extent in longitude 8 miles, and in latitude 5 miles.

WARWICK'S Account by ROBERTSON.

Latitude 1° 10′ north longitude by M. D. from the north part of New Guinea 134° 30′ Eaſt.

Captain WILLIAMS'S Account.

Latitude 1° 00′ to 00° 55′ north longitude, by chronometer; from 134° 25′ to 134° 17′ Eaſt, places the body of them in latitude 00° 57′ 30″ north longitude, 134° 21′ 00″ Eaſt of Greenwich.

If the latitude 1° 10′ be adopted from the *Warwick's* account, for the mean ſituation of the St. David's Iſlands, the comparative view above will exhibit a difference between that and the obſervations taken on board the *Thames*, of 12 miles; but if it meant to be the latitude of the northernmoſt iſland, the difference will then be only 10 miles, a variation that may ariſe in computing the diſtance from the land when the bearings were taken; in doing which, as it depends much on the judgment of thoſe who took them, either may be liable to err. It would therefore be thought preſumptive in me to aſſert, that the *Thames's* account of its latitude is more correct than that given by the *Warwick*; but it may not be improper to call again to the recollection, that the latitude given by me, was reduced from two meridian obſervations, the one taken eleven hours before we made the iſlands, the other four hours after we left them: whether the *Warwick* had ſo good an opportunity of determining the latitude, Mr. *Robertſon's* account does not mention. With reſpect to their longitude, in which the comparative accounts above differs only 9 miles, which is coming very nigh each other, I am inclined to believe that the account given by the *Thames* will be found moſt correct; becauſe the proof on which their meridian have been formed by the different ſhips, is in favour of that account, which places them, by a well-known regulated chronometer, by obſervations taken in ſight of the Iſlands; whilſt the *Warwick's* longitude is reduced by meridional diſtance made from the north part of the coaſt of New Guinea in a day and a half, through a ſea which is conſtantly affected by currents running in all directions.

## THE STRAITS TO THE EAST OF JAVA.

### STRAITS OF BALLY, LOMBOCK, ALASS, SAPY, FLORIS, &c.

WE have already given general inſtructions for ſhips bound to any of theſe ſtraits, and for thoſe who are coming from Europe, as well as for the ſhips which, from Poolo Aore, are croſſing the Java Sea to paſs through them.

The STRAITS OF BALLY, between the iſland of the ſame name and that of Java, are the weſternmoſt of all, and their entrance is eaſily known. *Ballemboang* on the weſt ſide of the Straits cannot likewiſe be miſtaken; you may anchor there with *Gonìngam* South, in 6 or 7 fathoms,

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fathoms water: after you get this length, it will be very neceſſary to attend the ſhift of the ſtream, ſo as to take the beginning of it to weigh with, which, with the aſſiſtance of your boats, though it ſhould be calm, will carry you through. Keep nearly mid-channel, and when you get up with *Gillyboang* you will meet with regular ſoundings.

"The tides here ſet ſtronger," ſays the captain of the *Oſterly*, "than thoſe I have met with in any other ſtraits, having found them to run 6 knots an hour: care, therefore, ſhould be had not to come too cloſe to any of the points, as the tide rounds the bay with great violence, and ſome ſhips have been in danger for want of this attention.

"I have particularly remarked, on theſe coaſts, as well as amongſt the iſlands betwixt them and Borneo, before a ſhift of the ſtream, a calm has ſucceeded, which, if properly attended to, when there is anchoring ground, may ſecure what is got, beſides preventing danger.

"Paſſing theſe Straits for China, I took particular notice of the ſhoal between *Gilan*, or *Gilleon*, and *Pondy*. It is a very dangerous reef covered at high water, but in the S. E. Monſoon it is at no time very viſible. Ships that ſail betwixt Pondy and Gilan muſt go very near it; and yet the paſſage is very good on either ſide the ſhoal, when it can be ſeen, or its ſituation well known. When this reef bears S. 31° E. the ſouth-eaſt part of Madura is bearing N. 17° E. and the ſouth part of Gilan S. 35° E*.

"In turning into the channel, between the iſlands and Madura, for Samanab, you may ſtand toward the iſlands to 13 or 14 fathoms, and toward Madura ſide to 10 fathoms; but you cannot enter the bay of Samanab, though you may anchor before it, on the north ſhore, in 6 or 7 fathoms: you get freſh water, and other refreſhments, of the Dutch, who have a fort here: cloſe round the point, in the bay there are ſeveral ſprings.

"The *Oſterly* anchored in 5 fathoms, blue mud; the ſouth point of *Samanab*, W. 13° S. the point forming the bay of ditto, N. 23° W. the Dutch fort, N. 33° W. the ſouth-eaſt part of Madura, Eaſt: *Gilan* iſland E. $\frac{1}{2}$ S. diſtant from the neareſt ſhore $2\frac{1}{2}$ miles.

"To go between Pondy and Madura, you muſt keep the former cloſe on board, it being very flat, for more than $\frac{3}{4}$ over, between both iſlands; you will not have leſs than 11 or 12 fathoms within a mile of Pondy. In paſſing Gilan iſland I would not haul up for Pondy till I was the length of the weſt end, and then ſteer for the point of the iſland. If you ſhould ſhoal to 4 or 5 fathoms, as you haul to the iſland you will deepen."

M. *D'Après*, ſpeaking of the Straits of Bally, juſtly gives the preference to the Straits of Lombock, but he only indicates them; and we muſt have recourſe to other navigators for their deſcription.

The STRAITS OF LOMBOCK are formed by the iſland of Bally to the Weſt, and that of Lombock to the Eaſt. The ſouth entrance is eaſily known by the large iſland, called *Banditti iſland*, which lies in it, near the weſt ſide; the ridge of that iſland is very like a barn, appearing, at the diſtance it is firſt ſeen, ſharp at the top, with the ſides chalky, like the

* The draught of the *Nonſuch*, that went through theſe ſtraits, in 1791, takes no notice of this ſhoal; but lays down another ſtrait equally ſafe as that of Pondy, between it and *Hog Iſland*, through which ſhe went in her return, May, 1791.

cliffs.

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cliffs of our forelands: off the ends of Banditty, as you near it, and open the paſſage between that and Bally, in paſſing to the north-eaſt end, there are many rocks and iſlots. This iſland, according to Captain *William Fraſer's* ſeries of aſtronomical obſervations, is in 115° 36′ eaſt longitude from London, and 8° 46′ latitude South.

The peaks of Bally and Lombock are another ſure mark to diſtinguiſh the latter ſtraits from the others; at 7 or 8 leagues from the coaſt, thoſe peaks are both ſeen at the ſame time, when off the entrance. The *Peak of Bally* is a ſingle ſharp-pointed mountain, which, when bearing N. by W. is exactly in the centre of the opening of the ſtraits: the *Peak of Lombock*, which is double, bears then N. E. ¼ N. and is ſeen topping over the weſtern highland of the iſle. It is ſituated on the north-eaſt part of it, and may be deſcried at ſea 24 or 25 leagues.

Theſe ſtraits are extremely ſteep on either ſhore, and in the faireſt and ſafeſt paſſage there are no ſoundings for any ſhip. The great riplings you will ſee in entering are uncommon, and have cauſed the generality of people to form ideas of rapid tides, which, joined to the want of ſoundings, and of being liable to be becalmed by the high land, makes them dread apparent danger as real.

The ſtraits of Lombock are ſhort, as the eaſt point of Bally may be ſeen from Banditti iſland. There is a flux and reflux, though we are not acquainted with the flowings, nor the time of high water, at full and change: but a ſhip not hauling too ſoon round Lombock, and keeping mid-channel betwixt Banditti iſland and Lombock, let the ſtream be which way it will, there can be no danger; and if it blows, it will ſoon carry her clear. In light winds it would not be adviſable to haul too ſoon for the Bally ſhore, till well paſt Banditti iſland, and then to round Bally point pretty cloſe, as the ſhore is bold and very clear.

Leſt any ſhould be tempted, from the inviting appearance of Bally Bay, without trial of the ſoundings, to enter it, it is neceſſary to inform them that the navigator to whom we owe this account, is of opinion there is no anchoring for ſhips. "I ſent my boats a ſounding about 2 miles from the ſhore," ſays this gentleman, "and had no ſoundings; of which not being ſatisfied, as I ſaw ſeveral prows in the bottom of the bay, near the ſhore, I went the day following myſelf, and not a mile from the ſhore, on the north ſide, had 150 fathoms rocky ground, and within a little more than a cable's length 68 fathoms, coral."

Fourteen or fifteen leagues eaſtward of the Straits of Lombock are the Straits of Alaſs; and the ſhore between them is for the moſt part a ſandy beach, without any viſible danger. A few leagues to the eaſtward of the ſouth-weſt point of Lombock lies a deep bay or inlet, and off the weſt point of the ſaid bay are ſome ſtraggling rocks above water, 2 or 3 miles from ſhore.

THE STRAITS OF ALASS extend 16 leagues N. N. E. and S. S. W. the iſland *Sumbawa* bounds them on the Eaſt, and *Lombock* iſland on the Weſt: Sumbawa is very high and rugged; the inland hills are covered with wood; its ſouth-weſt point in 8° 49′ latitude South, ſtretches about 4 or 4½ leagues farther to the South than the ſouth-eaſt point



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of Lombock iſland, which is moderately high, with white cliffs along the coaſt for a great way to the weſtward. This ſouth-weſt point is very much reſembling the South Foreland.

In coming into theſe Straits from the ſouthward, it is beſt to keep neareſt the Lombock ſhore, where you will ſooner get into ſoundings, and much better anchor-ground, than on the Sumbawa coaſt, which is found rocky and ſteep to all through the ſtraits.

When the ſouth-eaſt point of Lombock bears W. N. W. and the ſouth-weſt point of Sumbawa S. E. by S. you will then have ground between 64 and 70 fathoms, coarſe ſand and coral, diſtance off the Lombock ſhore 2½ or 3 miles. There, in caſe of its falling calm, or the tide ſetting againſt you, you may come to with a kedge or light anchor, in very fine holding ground. There are ſoundings a little farther to the ſouthward, and more over to the Sumbawa ſhore, but very deep water, 80 and 90 fathoms, rocky bottom.

Off the pitch of the point of Lombock lies a ſmall rock above water, not unlike a high canoe without a ſail, and diſtant from the main land about ½ mile. When you come to round the point, you will open a very fine deep bay, which the *Vanſittart*, in 1780, called *Lombock Bay*, and where the anchor ground is good, and well ſheltered from the ſoutherly wind; they found it to blow very ſtrong through the day, and a very ſtrong tide ſetting in with it. The ſoundings are regularly decreaſing from 55 fathoms, as you approach the north part of the bay and the Lombock ſhore, to any depth of water you pleaſe, fine, ſtiff ſandy bottom; leaving 5 fathoms two cables' length from the rocks, which extend along the ſhore for ſeveral miles to the northward and ſouthward of Bally town; they are moſtly dry at low water, and inſide of them is a fine ſandy bottom, where the large Malay prows lay to take in their cargoes, chiefly rice and paddy, for the adjacent iſlands. A great many of the nutmeg and cloves for ſale were ſeen there, but it was not ſuppoſed they were the produce of the country.

BALLY TOWN is delightfully ſituated in Lombock iſland, on the ſide of a ſmall river, where the *Vanſittart* watered;* it was exceedingly convenient for that purpoſe, having only about 100 yards to roll their caſks to where they are filled. The boat may lay cloſe to the beach, if flood-tide, abreaſt of the place you roll your caſks to. Care muſt be taken however to get without the reef before low water, otherwiſe you muſt remain till quarter-flood again.

The ebbing and flowing of the tide in ſhore is regular, riſing in ſpring-tides 12 or 13 feet; high water on full and change days at ½ paſt 9 o'clock.

In the ſouth entrance of the ſtraits, the current or tide is very irregular, both in reſpect to its courſe and times of ſhifting; however it is pretty ſtrong, and from 2 to 3½ knots *per* hour. When you are fairly entered into the Straits, you have then a regular current ſetting

* About 4 leagues N. E. of Bally town is another watering place at *Segar*, of which M. *Black* ſpeaks thus:—"Whilſt at anchor off Segar we met with kind treatment, and the watering place far ſuperior to Bally, there being no rocks near the ſhore, as is the caſe off Bally; beſides you can take your water in at all times of the year. There is good anchoring-ground within the coral bank parallel to Segar ſouth ſhore."

N. N. E.

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N. N. E. and S. S. W. all through the ſtraits, but by far ſtronger to the northward, and generally a great deal longer, than that which ſets to the ſouthward.

The inhabitants were a very friendly and fair-dealing people, as any ever met with in the eaſtern countries, or indeed any where elſe. The *Vanſittart* was plentifully ſupplied with bullocks, buffaloes, goats, fowls, ducks, remarkable fine rice, Sago-flour, &c. Fruit of all ſorts exceedingly reaſonable; buffaloes were 4 or 5 dollars, and bullocks 7. The natives were fond of red cloth, muſkets, knives, &c. but would not barter their cattle for them: however, cheap cutlery of the large ſort is the beſt and ſureſt article to procure fowls, fruits, or any thing in the ſmall way.

Half-way up the ſtraits lies a low iſland on the Lombock ſhore, off which runs out a reef to the ſouth-eaſtward, about $1\frac{1}{2}$ mile from it. The ſtraits are made narrower at this place by a cluſter of iſlands on the Sumbawa ſhore, which project a good way out; they are ſteep-to, and tolerably high. In paſſing *Rocky iſland*, diſtant $2\frac{1}{2}$ miles, the *Vanſittart* had 35, 36, 37, 40, and 50 fathoms; and when a little to the northward of it, no more ſoundings on either ſhore with 100 fathoms line.

No danger is known in thoſe ſtraits but what is viſible, "ſo that it is, without doubt," concludes Mr. *Robertſon*, "the cleareſt, ſafeſt, and beſt paſſage of all the ſtraits to the eaſtward."

Above 60 leagues to the eaſtward of the Straits of Alaſs lie the STRAITS OF SAPY, between Sumbawa iſland on the Weſt, and the Iſle of *Ende*, or *Floris*, called alſo *Mangeray*, on the Eaſt. In February 1791, the *Nonſuch* ſailed along the north coaſt of this iſland, coming from the ſtraits between Pondy and Gilan, at the eaſt end of Madura; ſhe came to the entrance of *Bemia*, a bay near the eaſt end of Sumbawa, 7 or 8 leagues deep, with 50 fathoms in the narroweſt entrance, and 20 and 19 at the farther end, and abreaſt of a town of the ſame name. In the month of April, coming from the northward, the *Nonſuch* anchored in 20 and 30 fathoms before the town of Sumbawa, near the weſt end of the iſland; and in her track to Madura paſſed the ſtraits between *Pondy* and *Enterpot*, or *Hog* iſland.

The Iſland of SUMBAWA, Cumbawa, or *Cumbava*, runs nearly in the parallel of 8° 40′; its ſouth-eaſt point lying in 8° 33′ South. The coaſt is all along high double land, except near the middle of it, where there is a low point of trees. Over againſt this point, inland, is the termination of the great bay on the north ſide of the iſland, which almoſt cuts it in two. At the entrance of this bay lies *Poolo Mayo*, an iſland about 20 miles long, and 10 or 11 broad, having the ſmall iſle of *Setonda*, near its eaſternmoſt end: ſeven or 8 miles from its weſt end lies a *Flat iſle*, about 6 miles in length, between which and Poolo Mayo the *Nonſuch* paſſed in going to the anchorage of Sumbawa.

Sumbawa is encompaſſed with many iſles and rocky iſlots, which muſt be rounded when you go into *Sapy Bay*, at the ſouth entrance of the ſtraits.

The bearings of the *Earl of Mansfield's* anchoring place in this bay were as follows: *Sintodo* point S. 54° E. *Matacot* rock S. 72° E. *Boorooboody* iſland S. 84° E. the extremes of *Galybantin* from N. 70° to N. 89° E. Sapy Bay from S. 25° W. to S. 11° W. the north extremes of Sumbawa N. 20° W. a point of land on Sumbawa, round which they watered,



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and where there is a ſmall village S. 50° W. the double peaks of *Goonong apy* in one N. 2° E. diſtance from the Sumbawa ſhore 2¼ miles, in 30 fathoms water, clear ſandy ground. Latitude of the ſhip at anchor 8° 26′ South; found the regular land and ſea-breezes; the ſoutherly wind in the morning, and the northerly wind about 2 in the afternoon. The tide ran only 2½ knots where the ſhip lay; and flows, at full and change, about 1 hour 30′.

The iſland of Goonong apy, as we have already obſerved, is about one league off the north-eaſt part of Sumbawa.

In coming out of Sapy Straits, great care ought to be taken to prevent being horſed to the eaſtward. The *Mansfield*, with every poſſible caution, fell to leeward, and made the *Tonyn Iſland*, which lies to the ſouthward of Saleyer and 88 miles to the eaſtward of Goonong apy.

## DESCRIPTION OF THE STRAITS OF SAPY.

From Captain REES, of the *Northumberland*.

THOSE ſtraits are formed by *Sumbawa* to the Weſt, and Comodo, *(Rotten* or *Rat Iſland)* on the Eaſt; the entrance both from the northward and ſouthward clear of danger, with ſhores ſteep-to. Their northern part is divided by the iſland *Gylabanta*, or *Galybantin*, which forms two paſſages. The eaſtern, or that between it and Comodo, is by much the ſhorteſt, and apparently open and bold; but in the weſtern Monſoon, being the lee channel, in which it is reaſonable to ſuppoſe there are no ſoundings, and Comodo having the appearance of an iron-bound coaſt, on which the ebb-tide ſets; it can at no time be eligible but for a ſhip from the eaſtward, bound to the Indian Ocean, that do not require a ſupply of freſh water, &c. In all other caſes, the weſtern, or the entrance between Gylabanta and Sumbawa, is preferable; the uſual track through it has been to the eaſtward of Matacotty; but that between Boorooſa Caper and Black Rocks has evidently the advantage, as, in coming from the ſouthward, a ſhip, by hauling to the weſtward, keeps the weather ſhore on board: avoid the low rocks, and get the ſooner into anchorage.

A ſhip from the northward, by keeping on the weſtern ſide of the Straits, is enabled to anchor of *Boorooſa Caper*, during a flood tide, which would enable her to take advantage of the firſt of the ebb. In the former inſtance, if refreſhments be required, as well as water, ſhe ſhould, after rounding Boorooſa Caper, make for *Rees's Bay*, the watering place, in the cove of which bears from Boorooſa, N. 85½° W. but the moſt eligible anchorage is with it bearing from Eaſt to S. 88° E. with a bottom of mud and ſand, in about 20 fathoms; the north point of the bay and iſle off it, but not ſhut in, which will avoid all the ſhoal ſpots: one of coral and ſand with 10 or 11 feet water on it, bore W. S. W. not ½ a mile from the *Northumberland's* anchorage; and northward of this the *Haſtings* and *Coote* anchored, on a bank in 6½ fathoms, although all round were 18 and 19 fathoms, mud and ſand: on it the bottom was ſand and ſhells; of courſe indifferent holding ground, but good for fiſhing.

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The north part of the bay is moſtly environed with coral, but the ſouthern is bold and clear, and round the north-weſt part of Lamboo iſles, an exceeding fine harbour, with 17 fathoms ¼ of a mile from ſhore. Although, from the known treacherous diſpoſition of the Malays, it may not be prudent for a ſingle ſhip to lay there, while her crew were engaged wooding and watering.

Sapy Bay. Eaſtward of Rocky Iſland, I had no opportunity of examining, but although extenſive apparently, the remark on Rees's Bay, that the north ſhore is moſtly rocky, may be applied to this, with the addition of its being more ſhallow. At the ſouth-weſt part of the bay is a creek, and ¾ of a mile from the entrance, *Sapy Town*, where Buffaloes, goats, fowl, ſweet potatoes, and cocoa-nuts, are to be procured reaſonably, in exchange for red and blue handkerchiefs, large claſp-knives, new buttons, empty bottles, iron muſkets, &c. Money the natives appear but little acquainted with; for when left to the choice of an old ſilver dollar, and a new one of tutenague, they preferred the latter; but if ſuch deceits be allowed, they bid fair to deſtroy that confidence which the Engliſh ſeem to have acquired among the Eaſtern Iſlanders.

Should a ſhip that paſſes through thoſe ſtraits require only to be ſupplied with water and wood, they could be expeditiouſly procured at *Britannia's* or at *Rees's Bay*; the former is preferable, as the reſervoir which bears from Boorooſa Caper N. 61° W. is only 20 yards from high water mark, and the wood overhanging a ſandy beach; but, as it is very flat, barrecoes that can be carried by two men are the moſt convenient for watering in any of the bays. I do not think it adviſable for a ſhip to go into the Britannia's births, as the ſoundings are irregular, and in the middle of it the bottom is rocky: it is therefore beſt for a ſhip watering there to anchor in 25 fathoms, one mile off its northern point, as from the ſouthern one, there is a rocky ſhelf, extending nearly to *Iſland Point*, with ſome parts of it 2 miles off ſhore: and moſt of the points on this part of Sumbava have ſmall ſpits ſtretching from them, which, with the bottom, northward of Iſland Point, being hard ſand, makes it bad holding ground for a light anchor in the weſtern Monſoon.

A ſhip having completed her water, ſhould, if bound to the northward, paſs cloſe to

Goonong Apy, a mountainous iſland at the north entrance of the ſtraits, with a lofty peak on the ſouth-eaſt part; and, as the northern part of the iſland is alſo high and rugged, it is called Double peaked. By an obſervation I made, the latitude of the eaſt ſharp peak is 8° 11' South, and the longitude 119° 23' Eaſt, *per* ☉ and ☾; but for the latter I have adopted what may be conſidereed more ſatisfactorily accurate 119° 3' ½ Eaſt, made by *Henry Browne*, Eſq. from an obſervation of Jupiter's Satellites, corroborated by three chronometers, brought on from Macao; if, therefore, their rate of going appear uniformly regular, when compared at Greenwich, Goonong Apy's poſition may be taken as a ſtandard for all the eaſtern iſlands.

Soundings do not extend over the whole of thoſe ſtraits, nor are there any to the ſouthward of Matacoty, within half a cable's length of which you have 20 fathoms, and from it to the low rocks, 25: but the bottom thereabouts is all rocky, and between them and the Black rocks, I ſaw it under the bottom, at the depth of 35 fathoms: from thence to the northward

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is deeper, and on the Gylabanta ſide are no ſoundings. As the verge is nearly in the direction from Booroſa Caper to Goonong Apy, where there is from 40 to 45 fathoms, which decreaſe pretty regularly towards the Sumbawa ſhore to 20, and that depth, in moſt parts of it, is from a $\frac{1}{4}$ to $\frac{1}{2}$ a mile off. But what ſoundings, or even what the true ſituation of the ſouthern entrance to Sapy Bay is, I cannot give; for being at one ſtation on Lamboo Iſles, the needle was evidently affected, and I can therefore only remark, that there appears a clear channel. Not having been through the eaſtern paſſage alſo, it prevents my being certain of Peaked Iſland's relative ſituation, nor do I know any thing more of Clement's Bay, than from its bearings.

The tides, at the ſouthern entrance of the ſtraits, and near Matacoty, are very rapid, running on the ſprings about 4 knots: this occaſions ſtrong riplings, which to a ſtranger may be alarming; and, as the low rocks are nearly even with the water's edge, the following inſtances will ſhew that the track between them and Matacoty is not ſo eligible as that between the Black Rocks and Booroofa Caper.

Captain *Rees*, of the *Northumberland*, bound to China in February 1783, rounded *Matacoty*, or *Matacot*, very cloſe, with a ſpring flood, and freſh wind at N. W.; as ſoon as the low rocks were ſeen from the maſt-head, he bore up againſt the tide, with all ſails, which with difficulty were cleared, at the diſtance of a cable's length. Returning from China, in the *Britannia*, Sept. 1796, with a fleet of ten ſails, and having a ſoutherly wind, he was paſſing Matacoty at a mile diſtant to leeward, when the ebb ſetting very ſtrong, he put the helm up, and brought the wind on the quarter; but then, the ſhip not ſtemming the tide, and judging by its rapidity that there was a clear channel, he went between it and Middle Rock. The *Northumberland* and *Ceres* paſſed to the eaſtward of Matacoty, but all the other ſhips between the Black rocks and Booroofa Caper.

The flood tide ſets to the northward, the ebb to the ſouthward, and off the mouth of the ſtraits: we felt its effect when 7 leagues from the ſouth-eaſt part of Sumbawa, near to which, as far as I could judge from the very quick change in the ſhip's drift, it flows at full and change 11h. 30m. in Britannia's Bay 1h. 13m. 0: off Clement's Bay 2h. 30m. but the tides, which are much weaker within the verge of ſoundings, near the north-eaſt part of Sumbawa, make ſcarcely a ſtream in the bays.

Of the wind within the ſtraits there is no prevailing one, as the land and ſea-breezes are pretty regular, the former blowing from the ſouthward between 8 and 12 at night, and ending about 8 in the morning; the latter ſets in north-eaſterly from 10 to 2 o'clock in the day, and decreaſes at ſun ſet.

The northern entrance of *Mangeray* Straits is not an eligible route, as it appears narrow, and full of ſmall iſlands; but the north-weſt part, which is the north-eaſt point of Comodo, is the land that all ſhips from the northward, bound through the ſtraits of Sapy, ſhould endeavour to make: its ſituation, in point of meridian, 32$\frac{1}{2}$ miles Eaſt of Goonong Apy's peak, may be relied on, as it is made by Mr. *Browne's* chronometer; but its latitude, 8° 22′ South, is only by approximation.

"The ſtraits of Sapy," obſerves the officer to whom we are indebted for this article, "are not

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not to be conſidered as eligible for ſhips bound to China, as they lie too far to leeward; and in the middle of the weſtern Monſoon there is great riſk of not fetching Saleyer Straits, from Goonong Apy."

"But Captain *Rees*, although driven to leeward, appears, by ſome remarks he has favoured me with, to think it as much ſo as any of the eaſtern ſtraits. This I ſhall not attempt to decide, until my own obſervation, and the experience of others, enable me to form a comparative eſtimate of the whole."

## OBSERVATIONS, &c. ON THE STRAITS OF SAPY.

From the Journal of Captain HOGAN, of the *Marquis Cornwallis*, coming from the Straits of Saleyer.

"WEDNESDAY, 17th Auguſt, 1796, at ½ paſt meridian ſaw the land; the north end of *Comodo* iſland S. by W. the body of *Goonong Apy* iſland S. W. by W. at 2 ſaw two prows ahead ſtanding for the land; mounted 10 more of our guns.

"Hazy weather, ſaw the iſle *Gylabanta*, in the ſtraits of Sapy, bearing S. S. W. ½ W. Goonong Apy S. W. by W. ½ W. Comodo S. by W. Five prows in ſight.

"Standing into the Straits of Sapy, with a light breeze, and hazy weather. The body of Gylabanta S. S. E. 3 miles; Goonong Apy N. W. by W.

"Quarter paſt ſix, tacked within half a league of the two iſles of Sintodo within Sapy Bay.

From 7 to 10, working to windward, from the Rock Weſt of Matacoty, to the eaſt point of Camara, diſtant 7 miles . . . . . .

"At 7, the following bearings were taken; no time ſince day-light to attend that duty. Peak of Gilabanta N. by E. ¾ E. Two rocks N. E. ¼ E. and N. ¼ E. diſtant 2½ miles; Matacoty N. E. ¼ N. 3 miles; Peak of Goonong Apy N. by W. ¾ W. South Point of Sintodo W. ½ N. an iſle off it N. W. ½ W. Two rocks off it N. W. by N. Eaſt Point of Camara S. by E. ¼ E. 5 miles; South point of Comodo S. E. an iſle off it S. E. ½ S. the body of the iſland of *Sumbawa* S. W. by W. about 7 miles.

"At 6 this morning, after tacking to the N. E. I found a very ſtrong current or tide ſet the ſhip to the eaſtward and ſouthward, and, on coming near to the weſternmoſt rocks, it ran to the S. E. like a ſluice. I meant to ſtand on to the northward of theſe rocks, but the man at the maſt-head calling out a ſhoal ahead, I tacked immediately within a hundred yards of the above rocks, and ſtood S. by W. Soon after I was horſed by the rapidity of the tide or current into ſmooth water, and cloſe to a range of breaking water that extends 2½ miles to the ſouthward of the rocks; here we had 40 fathoms, corally bottom, within half

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half a mile of the breakers; and as the ſhip was ſetting upon them at the rate of 7 knots, I was obliged to wear before the wind, which blew ſtrong from the S. E. and ſet top-gallant ſails, and with our main ſail could ſcarce ſtem the current.

" I diſcovered, while looking for a paſſage through this apparent barrier, that there was deep water to the ſouthward of it, in ſhew; hauled in for that paſſage; furled top-gallant ſails, and worked through, cloſe to the north-eaſt point of Sintodo; one board carried us to the S. E. of that point, where I found a tide ſetting to the S. W.; tacked immediately toward the eaſtern ſide, and fetched 1½ mile to the eaſtward of Matacoty: from thence we worked, under courſes of top-ſails, againſt a ſtrong gale at S. E. taking care to keep in the way of the current, till 10 A. M. when we paſſed the eaſtern rock of *Camara* iſland, within a cable's length. At this moment it came on to blow very ſevere and ſo hard, that, had we been in an open ſea, I ſhould have thought double-reefed top-ſails and courſes too much canvas for her; but here we had the whole top-ſails, gib and driver, and the mizen top-ſail. When to the ſouthward of the Camara rocks or iſlots, we had a very large ſea rolling on the ſhore of Sumbawa; but as the gale was freſh, we ſoon got offing enough to edge away.

" At noon the middle of the Camara rocks N. N. E. 5 leagues; extremes of Sumbawa from N. by E. ½ E. to N. W. the body of *Rugged* iſland W. N. W. about 5 leagues. Latitude obſerved 8° 55′ South. Longitude by chronometer 119° 44′ Eaſt: by departure taken from the eaſt end of Sumbawa (as laid down by M. *Robertſon* in his chart, in 119° 30′ Eaſt) 119° 25′ Eaſt. Thermometer 78°.

" From what I have ſeen of the ſtraits of Sapy, I may ſafely aſſert, that they are a paſſage from which a ſhip has nothing to fear, as there is deep water between all the iſlands; the reef above-mentioned may be an overfall, as far as I know, though on it the ſea certainly broke very high; and I ſhould deem it dangerous for a boat to venture near it. The ſhip was within ¼ of a mile of the breakers, in 40 fathoms, to the ſouthward of the reef. When we paſſed through, the riplings and eddies were very ſtrong, but no ground at 6 fathoms of line.

" I ſailed through two-thirds of theſe ſtraits at night, and met with no difficulty whatever. To guard againſt the reef (though I do not aſſert for a certainty that it is one) keep the Sintodo ſhore on board, and that will carry you through to the eaſtward or weſtward, as you may be bound. You ſhould, however, give that ſhore a birth of a mile, and attend well to the tide or current: but do not be ſurpriſed if you find your ſhip ungovernable by the helm, for this race is more like the Pentland Firth of Scotland, than any other paſſage I have been through; notwithſtanding that I do pronounce the Straits of Sapy one of the beſt I ever ſailed through, and would always give it a preference when I could fetch it.

" Between the weſt coaſt of *Floris* and the cluſters of ſmall iſlands to the Eaſt of *Comodo* lie the STRAITS OF MANGERAY, which are narrow, and 7 or 8 leagues in length. The *Reſource*, homeward bound, went through them from the ſouthward in Auguſt 1789. Captain *William Bligh's* chart places the ſouth entrance of thoſe ſtraits in 8° 48′ latitude South.

REMARKS

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# REMARKS ON SANDALWOOD ISLAND,

By Captain ROBERT WILLIAMS,

THIS Iſland, which the natives call *Jeendana*, the Malay name for *Sandal*, is ſituated off the coaſts of Flores and Cumbawa: as it lies in the track of all ſhips bound through any of the ſtraits to the eaſtward of Alaſs, it becomes of great utility as a land-fall to correct the reckoning, and will enable the navigator to ſhape a courſe with a greater degree of certainty, by taking a freſh departure from thence to the entrance of whatever ſtraits he may be bound through. I made that iſland in the *Thames*, in company with the fleet under Captain *Drummond*, coming from the S. W. on the 24th of December, 1796, at 5 in the morning; it appeared of a moderate height, extending about 6 or 7 points of the compaſs. I alſo paſſed to the North, between it and Flores, in company with the *Carnatic*, on my return home the ſame voyage, and found its poſition, as given on the different charts, without exception, to be very erroneous, and this I ſhall point out.

From the accounts of thoſe ſhips who have made Sandalwood iſland, there is, on its north-eaſt ſide, a bay in which the charts mark anchorage; this being confirmed by a Dutchman on board the *Thames*, who ſaid he had been there before, I was induced to believe the place would procure the neceſſary proviſion of water, and freſh ſtock, of which our people ſtood greatly in need, from ſickneſs, and fatigue occaſioned by bad weather. I accordingly entered it on the evening of the 30th of Auguſt 1798, ſtanding within about a league of the ſhore, and at that diſtance had no ground at 70 fathoms. I found the coaſt wild and uncultivated on every part, nor could I trace the ſmalleſt appearance of any inhabitant, either in the courſe of the evening, or in the night, during which we did not even ſee one light or fire, which would undoubtedly have been the caſe, had there been any of the natives near this part of the iſland; at that time I had the extreme points of the bay bearing N. W. $\frac{1}{2}$ W. to the northward, and S. E. by E. to the ſouthward; our latitude was then 9° 26′ South, and longitude, by chronometer, 119° 45′ Eaſt of Greenwich. At ſun-ſet, the wind blowing hard from the S. E. with a large ſwell ſetting in, and the coaſt affording no ſhelter whatever for a ſhip at anchor, being, on the contrary, as forbidding as any I ever ſaw, I wore, ſtood out again, and plied to windward during the night, keeping cloſe in with the land, in hopes it would offer to our ſight ſome better proſpect in the morning; but, on the return of daylight, I found we had been drifted conſiderably to the weſtward, by a very ſtrong current, and that part of the iſland appearing as unlikely as the other to afford us any refreſhment whatever, I bore up for the Straits of Alaſs, where we got every thing in the greateſt abundance.

I am therefore inclined to think, that if a ſhip can obtain proviſions on this iſland, it muſt be on the north-weſt end of it, where anchoring is laid down; and Captain *Frazer*, in the *Mansfield*, ſaw lights in the night, with that part of the iſland bearing S. S. E.

Off the eaſt point, that forms the bay which I have been ſpeaking of, there are ſome rocks



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laid down, moſtly under water, it will therefore be adviſable to give them a good birth; a ſhip in great diſtreſs may be obliged to look there for refreſhments, but I think no one, after my deſcription, will be inclined to do it willingly.

I ſhall now proceed to ſtate the obſervations made by two different methods, for determining the ſituation of this iſland, and I have no doubt but their mean being adopted, as the reſult neareſt the truth, will be ſufficient for the ſafety of navigators.

| | | |
|---|---|---|
| *Thames's* account, outward bound, when the eaſt end bore North, chronometer made, - - - - | 120° | 30′ |
| Obſervation by Sun and Moon, at the ſame time, different ſets, | 120 | 35 |
| *Duke of Buccleugh's* account, eaſt end, ſame bearing, Sun and Moon, | 120 | 40 |
| Ditto chronometer, - - - - | 120 | 46 |
| Mean. | 120 | 37 |

## DESCRIPTION OF THE STRAITS OF FLORES OR FLORIS,

By Captain ROBERT WILLIAMS, of the *Thames*, 1797.

" THOSE Straits are formed by the Iſland of *Floris*, called alſo *Ende*, and *Mangeray*, to the weſtward, and by the iſles of *Solor*, and *Sabraon* or Adenara, to the eaſtward, and are in diſtance from one end to the other above 10 leagues. A journal of the *Jane*, Captain *Richard Pennel*, from Banjar to Timor, and back again to Banjar, is the only account on the company's record that we have of them; and it is given in ſo partial a manner, that it affords very little information: beſides, the voyage of that ſhip was begun in 1706, or near a century ago; and ſince that time the mode of navigating ſhips has been ſo much improved and altered, by the help of time-keepers, and celeſtial obſervations, that I am inclined to believe any remarks recently made will become uſeful, in adding to our hydrographical knowledge of theſe parts.

" The ſouth entrance of the Straits of Flores, lies in about 8° 45′* latitude South, and 123° 7′ Eaſt of Greenwich. In coming from the ſouthward, it is ſo remarkable that it cannot be miſtaken by any body who has once been there: if a ſtranger, after having paſſed *Sandalwood* Iſland, ſteers in for the iſle of Floris, whoſe coaſt is a range of very high mountains, and gets inſhore 15 or 20 miles to the weſtward of the ſtraits mouth, he will have no difficulty to find it; when far enough to the eaſtward, it will ſhew itſelf by a remarkable high and round iſland, that lies directly in it, and which you muſt keep going in on your ſtarboard hand. This † iſland is bold and ſteep-to, as the *Thames* and ſome

* Neither latitude nor longitude are mentioned by the captain: we give them both according to the moſt approved chart of theſe parts.

† It is called *Swangee*, in the Dutch and Portugueſe draughts. This entrance is named by the Portugueſe and the Dutch *Straits of Lovitove*, and *Gut of Floris*.

other

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other ſhips of the fleet paſſed very night it, and had no ground at 90 and 95 fathoms: at the ſame time, you will ſee a little farther to the eaſtward of it ſome half ſunken rocks, but which, being ſeldom or never covered altogether, ſhew their dangers.

" On the larboard ſide you perceive a remarkable green point of the iſle of *Floris*, making like a gunner's quoin, or neat's tongue; this point is under the high volcano of *Lobetobie*, (Lovotovo) which lies on the weſtern ſide of the ſtraits' mouth, and may be ſeen a long way off: it is generally ſeen burning in the night.

" From the Green Point, at about 3 miles diſtance, there is a reef of ſunken rocks, laid down in the manuſcript Dutch charts, with 9 fathoms cloſe to it; it will therefore be neceſſary to give it a wide birth; and keeping well without that depth, with the lead going, there will be no danger. Farther to the eaſtward the land forms ſo as to deceive you, ſhewing, in appearance, the entrance of another ſtrait, wider * than that of Floris, and which leads to what is called the *Dutch Gut*; it is the paſſage the *Jane* came through, but this you muſt guard againſt.

" Having paſſed the rock before deſcribed, you will ſee two others which ſhew themſelves the moment you have the Straits open; both of them are generally left on the larboard hand, but the fleet paſſed between them, had ground, 30 fathoms, keeping mid-channel, and found it a very fair and ſafe paſſage.

" Thoſe rocks being paſt 4 or 5 miles, and the evening cloſing, we hauled directly in for the ſtarboard ſhore, and came to in 35 fathoms, coarſe ſand and ſome coral, ſhoaling our water regularly according to our diſtance from the ſhore. The whole fleet lied in from 15 to 35 fathoms, and found the current ſetting pretty regular at the rate of 2 miles *per* hour, N. by W. and S. by E. The bearings taken from the *Thames*, when at anchor, were as follows: the high rock at the entrance S. by W. The extremes of Solor to the ſouthward S. by E. and thoſe of Flores to the ſouthward S. W. diſtance off ſhore about $1\frac{1}{2}$ mile.

" In this part of the ſtraits I attempted to land on the iſland of Flores with two boats, but I found the inhabitants hoſtile in their diſpoſition; I believe they ſuſpected we were ſome of the Dutch, who make a practice, when an opportunity offers, of carrying away the natives, to ſell them at Batavia; for they exclaimed, " Batavia," ſeveral times, ſhooting at us from the buſhes with their bows, and ſome of the arrows came very near us. A prow likewiſe, which was inſhore at the ſame time, entertained the ſame apprehenſions, for, on our going to board her, they inſtantly ran her on ſhore, and getting away every thing out of her, waded up to their middle in water, to meet the boats, with preſented muſkets, exclaiming, as I underſtood by our interpreter, that if any of us attempted to land, they ſhould immediately fire. However, the next day, on the Engliſh blue enſign being hoiſted, a prow came off to the bow of the ſhip, for they could not be perſuaded to come within the line of our guns, and a friendly intercourſe was to take place, when the ſignal was made to weigh, and we proceeded on our paſſage; but I have

* This is named the *South Straits of Solor*, according to the Portugueſe.



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very little doubt, if we had remained longer, but we could have procured ſome refreſhments.

" An outward bound ſhip, having arrived thus far, it will be neceſſary that the navigator, bound to Amboyna or Banda, ſhould conſider by what track he will enter the *Banda Sea*; whether by that which is commonly called *Larantooca* * *Gut*, through which the fleet, of which the *Thames* made one, and under the command of Captain *Drummond*, of the *Glatton*, paſſed this voyage; or, if he will continue his courſe to the eaſtward, between the iſlands of Solor and Adenara, and then through the *Dutch Gut*, which is the paſſage invariably purſued by Dutch ſhips of large burden; to this, from the accounts, though ſuperficial, I have had of it, I ſhould give the preference.

" On the 26th of December, at noon, we weighed, with a light breeze from the ſouthward, and ſteered about N. E. by N. and N. E. $\frac{1}{2}$ N. till abreaſt of the village of Larantooca, where the *Jane* moored in 15 fathoms, about 3 cables' length diſtance from the Flores ſhore; but our fleet hauled to the ſtarboard ſhore, which forms a kind of ſmall bay, and came to in 23 fathoms, coarſe ſand and coral, ſhoaling gradually as we approached the land: we ſaw no danger whatever, and ſo far thoſe ſtraits were navigated by us, with leſs difficulty than any I ever paſſed through. We found the anchorage on this ſide of the ſtraits very bad, and I ſhould rather recommend a ſhip to bring up in Larantooca road, than on the Adenara ſide, as I think the ground is better, and the tide more regular. Two ſhips of our fleet loſt their anchors from the bottom being rocky, and our cable hooked a rock, though the ſurface appears tolerably fair: the middle of the bay was the cleareſt ground, and the *Thames*, which lied the neareſt ſhip inſhore, had very little tide; but that little ran ſo irregular, with ſtrong freſhes, as to take the ſhip round ſeveral times in a few minutes; particularly on the firſt of the flood, when the ſhips that were lying farther in the ſtream had the tide more regular, and running at the rate of 4 or 5 knots *per* hour.

" The village of Larantooca is ſituated on the iſle of Flores, which, as we have ſaid, forms the larboard ſhore; in general they hoiſt there a Portugueſe flag, and now moſt likely they add to it an Engliſh Jack, given by Captain *Drummond*, with ſome arms which the inhabitants aſked to defend it; it was hoiſted before we left the ſtraits, under a ſalute from them.

" The inhabitants of Larantooca, as well as thoſe of the village of Adenara, on the oppoſite ſhore, have been taught to embrace chriſtianiſm by the Portugueſe, who, above a century ago, ſent *Padres* for that purpoſe: the zeal of theſe indefatigable miſſionaries has proved ſo ſucceſsful, that their religion is now profeſſed in a great number of the iſlands of thoſe ſeas. We had much intercourſe with the natives, and found them very ready in offering every ſervice and refreſhment which their ſituation permitted; three ſhips might have been well accommodated, but a fleet of ſix ſails was too numerous for the place.

" Theſe two iſlands abound with fruits of various kinds, and freſh water is to be procured

* The Portugueſe call it the *Straits of Solor*.

there,

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there, to which the inhabitants will direct you: there is alſo fine goats, hogs, fowls, and ſome turtle; two or three buffaloes were ſent to the *Glatton*, by the raja or prince who reſides at Larantooca. We alſo found plenty of grain for ſtock at Adenara, and all theſe articles were extremely reaſonable; we gave in return flints, muſket-balls, with gunpowder in ſmall quantities; glaſs bottles, wine glaſſes, and all ſorts of coarſe cutlery. The articles of trade here, which conſiſt chiefly in wax, hogs, bezoar, and ambergreaſe, are not in ſuch abundance as to make it worth a ſhip's while to touch on that account; indeed, whatever they have, requires ſome months to collect, and is generally ſent in ſmall prows to Timor, and other places, where it is taken by the Chineſe junks to the different markets.

" The land of theſe iſlands is exceedingly high, and you are expoſed to ſtrong guſts and ſqualls of ſhort duration.

" On the 4th of January we got under weigh, with a light breeze from the S. W. on the firſt of the flood (which a ſhip ſhould always do if poſſible) and ran, or rather drove, through Larantooca Gut, keeping as near mid-channel as we could: the leaſt water carried through was 17 fathoms, but ſome of the ſhips who were nearer the ſhore, had only 10. This paſſage is very narrow, not being more than $\frac{3}{4}$ of a mile wide, and ſubject to rapid tides, which ſeem to ſet nearly right through it: the appearance to a ſtranger is tremendous, and though I believe the channel ſafe, from the ſet of the tides, and the boldneſs of the ſhore on both ſides, of which I was fully ſatisfied, having ſounded all through in our boats, the day before we paſſed in our ſhips, yet, conſidering its extreme narrowneſs, I confeſs I ſhould not be inclined to attempt it again.

" When ſhips are coming up with the fartheſt point which is ſeen on the Flores ſhore before they enter the Gut, they ſhould be careful to haul well over to ſtarboard when paſſing it, as the tide ſetting there ſtrong round it, will huſtle them into the bight, on the larboard land, which is all over ſhoal water.

" Having the paſſage once fairly open, you will ſee a high round iſland lying about N. E. from it, at the diſtance of about 10 or 12 leagues; this I ſtate to be *Poolo Camby*, which has been ſometimes erroneouſly called *Battery*, or *Battotara*, a name that belongs to another iſland, of greater magnitude, lying farther to the north-eaſtward, and which was made by me, homeward bound this voyage.

Poolo Camby being of a tolerable height, is a very good guide to a ſhip coming from the Banda Sea, bound through the Straits of Flores: having once ſight of it ſhe may ſafely ſteer in for the iſland Adenara, and come to an anchor under the village of that name, where ſhe may get her boats out, and take every requiſite precaution before ſhe enters the paſſage I have been deſcribing; in that village ſhe will, with very little inconvenience, get every thing which may be found neceſſary.

" As ſoon as we got under the high land, the wind came freſh from the weſtward, when we hove to, *per ſignal*, till the remainder of the fleet arrived up with us; Poolo Camby bearing at that time N. E. $\frac{3}{4}$ E. diſtant 8 or 10 leagues; the extremes of Flores W. by S.; Adenara Eaſt; and the entrance of Larantooca gut S. W. $\frac{1}{2}$ S. diſtance off ſhore 4 or 5 leagues. . . . . .

" At

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" At 6 P. M. we made ſail, and ſteered during the night N. by E. to N. N. E. ½ E. making our courſe good N. 17° E. diſtance 39 miles, till 2 in the morning. Then hauled N. E. by N. expecting that we ſhould at this ſeaſon of the year experience a ſet to the eaſtward; but in this we were miſtaken, for at 1 P. M. the next afternoon we made the iſlands of *Toocan Beſſy* from the maſt-head, bearing from N. W. ½ W. to N. W. ½ N. diſtance 5 or 6 leagues, having made our courſe good from 2 A. M. N. 34° E. diſtance 69 miles.

To the eaſtward of Floris are four different ſtraits, much frequented by the Portugueſe, who find them very ſafe, but with which we are not acquainted enough to give any ſatisfactory deſcription. Thoſe are 1° the ſtraits of LARANTOOCA or SOLOR, between Floris and the iſlands of *Sabrao* or *Adenara*, and *Solor*. 2° The ſtraits of ZEMANRO between the latter iſlands and that of *Lomblem*. 3° The ſtraits of Aloo, between *Lomblem*, and *Pantare* iſland: this gut, as they call it, is the common paſſage from Macaſſar to Timor, and for the Chineſe junks from Macao to Lifao, on the north coaſt of the ſame iſland; the celebrated *Dampier* went through it in his return from New Guinea in 1680. 4° The GUT OF PANTARE between the iſle of that name and that of Omblay: this is narrow, intricate, and dangerous.

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## GENERAL INSTRUCTIONS FOR SAILING TOWARDS THE BANDA SEA. ACCOUNT OF THE LUCEPARAS, AND OF THE BURNING ISLAND, IN THE BANDA SEA, &c.

By Captain ROBERT WILLIAMS.

THAT policy which has preſerved to the Dutch, ſo long, the undiſturbed poſſeſſion of the *Molucca iſlands*, has, no doubt, had its influence in keeping the navigation of that ſea, almoſt unknown to any nation but their own; if not by force, at leaſt in aggravating its danger, probably beyond what really exiſts; but the eaſtern paſſages made to China, by the ſhips in the honourable Eaſt-India company's ſervice, have been of late, and are now, ſo frequent, the events of the war, added to other circumſtances, have occaſioned ſo many explorations, that the Banda Sea, and indeed the whole of the Molucca navigation, will very ſoon be perfectly known.

One of the principal and general dangers attending this ocean is the ſet of the currents, which are ſo precarious, and ſo uncertain in their ſtrength and courſe, that it requires every attention poſſible to guard againſt their effect. From what I have ſeen myſelf, I am only ſurpriſed that the loſs of ſhips was not more frequent, before navigation was ſo effectually aſſiſted by the help of time-keepers, as it now is; and without them no ſhip ſhould, I think, attempt to paſs this way. My obſervation on the currents in Dampier's Strait, which, as to their general effect, apply equally to the Banda Sea, and all others ſituated hereabouts, will make

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make it unneceſſary to add any more remarks on the ſubject in general; but I ſhall hereafter confine my explanation to particular ſituations.

A ſhip in paſſing along the weſtern ſide of this ſea, to the eaſtward of the Toocan Beſſys, ſhould be very cautious when coming near their latitude, either in the night or thick weather, on account of the currents, which, particularly hereabouts, run ſometimes with great force and uncertainty. I made theſe iſlands, both outward and homeward, on the ſame voyage, and paſſed to the eaſtward of them in the different Monſoons: they are very low, ſurrounded with rocks and ſhoals, and cannot be ſeen above 4 or 5 leagues, even in fine weather; but the track which has been generally followed by the ſhips in the company's ſervice has been to the weſtward, between the Toocan Beſſys and the Iſland of Bouton. On my outward-bound voyage, in the Month of January, during the northern or weſtern Monſoon, I found little or no current, from the iſland of Poolo Cambay, up to this ſituation; but it is remarked in the journal of the *Addington*, which ſhip paſſed this way ſome weeks previous to the *Thames*, (though in the ſame Monſoon) off theſe iſlands ſhe was ſet 33 miles to the eaſtward, from 4 P. M. to 8 A. M. and this probably is accounted for, when we conſider the ſituation of the Moon, at each particular period when theſe ſhips were here; for it appears that the powers of that planet, acting on the general tides of the ocean, when the *Thames* paſſed, were the weakeſt; and, on the contrary, the *Addington*, when near theſe iſlands, experienced them at their ſtrongeſt; or, in other words, ſhe was here nearly at the height of the ſpring tides. I alſo, on my return home, found the ſame cauſe acting here with the ſame effect.

After leaving the Pitt's Paſſage, in the ſouthern or eaſtern Monſoon, homeward bound, and having paſſed to the weſtward, and of courſe to leeward of the iſland of Booro, I could have weathered the Toocan Beſſys; but, as I thought their ſituation not well aſcertained, I did not chooſe to riſk too much, notwithſtanding I had the advantage of a very good chronometer, with which all my obſervations of the Sun, Moon, and Stars, have invariably nearly agreed; in conſequence, when near their ſituation in the night, I worked to windward, making ſhort boards till day-light, and about noon the next day made the eaſternmoſt of them, bearing W. by S. When in the latitude of theſe iſlands, we had the water during the nights very much diſcoloured, appearing extremely white and luminous, which induced me to ſound. The *Carnatic* alſo kept her lead conſtantly going, in conſequence of the ſame appearance, but neither of the ſhips found any bottom; on examining the water, it appeared to contain a great quantity of animalcula, ſome of which were of conſiderable ſize; there were alſo many birds, flying in a line, like wild fowl, for two or three days, both previous and after our ſeeing the iſlands.

From the time of leaving the iſland of Booro, till we got near the ſituation of the Toocan Beſſys, we experienced the current ſetting W. by N. ſometimes more weſterly, at the rate of 10 and 20 miles in 24 hours; and between the latitudes of 6 and 7 degrees, which include their poſition, we experienced a ſet of 33 miles to the weſtward in nine hours and a half, and 49 in the courſe of twenty-four hours; at this time it was the height of the ſprings, a circumſtance that in ſome meaſure agrees, as to the cauſe of the difference in the ſtrength of the currents, found by the *Thames* and *Addington*, and I have no doubt, though almoſt

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almoſt in an open ſea, that, had we paſſed it any other time than the full or change of the Moon, we ſhould have found the current ſetting with the wind, weaker or ſtronger, in proportion to the power of her periodical influence, and at all times in proportion to the ſtrength of the wind that blows.

The obſervations of the different ſhips that have made the eaſtern ſide of thoſe iſlands, place the eaſternmoſt of them as follows:

| | | | | | |
|---|---|---|---|---|---|
| *Henry Addington*, | 25th Dec. 1796, | Lat. 6° 12′ S. | Long. per chronometer | 124° 26′ E. |
| *Thames*, outward, | 5th Jan. 1797, | 6 08 | Do. per Do. | 124 48 |
| *Thames*, homeward, | 20th Aug. 1797, | 6 08 | Do. per Do. | 124 30 |

The account that I have given of the Toocan Beſſys will be a ſufficient caution to keep a very ſtrict look-out in paſſing between the latitude of 6 and 7 degrees; and I would by no means come to the weſtward of 125 degrees of eaſt longitude, in thick weather, or in the night-time, as it will be the ſure method to avoid all thoſe dangers, with which they are ſurrounded.

The LUCEPARAS and the BURNING ISLAND, in the Banda Sea, were ſeen by the *Taunton Caſtle*, in her return from China, at 2 P. M. on the 28th of Auguſt, 1797: they are four low woody iſlands, and cannot be ſeen from the deck above 4 leagues. By the meridian obſervation of that ſhip, and worked on to 4 P. M. when the iſlands bore from the deck S. E. diſtance 4 leagues, the latitude of them appears to be 5° 34′ South; and from leaving the Luceparas, till they made the *Burning Iſland*, with the aforeſaid bearings, at 10 A. M. they made their courſe good by log S. 17° Weſt, diſtance 63 miles, when they deſcried the latter iſland from the deck bearing S. by W. about 5 leagues. At this time they had freſh gales from the S. E. with frequent ſqualls, and the weather hazy. They ſaw a great quantity of ſmoke to iſſue from it, and by an obſervation of the Sun and Moon, taken when 5 miles diſtant, and it appeared as underneath, they made its longitude 126° 20′ Eaſt, and the latitude 6° 34′ South.

## AMBOYNA, IN THE BANDA SEA.

By Captain ROBERT WILLIAMS.

AMBOYNA was the firſt iſland taken from the Portugueſe, in the year 1605, by the Dutch, and the government they eſtabliſhed there was ſupreme over all the Moluccas, and next in rank to that of Batavia. It is well known in the hiſtory of the world, by the dreadful maſſacre

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maſſacre which they made of the unfortunate Engliſh in the year 1622. I truſt it will ever be remembered, that it may remain an eternal ſtigma on the character of that nation, whoſe laws of juſtice could be for a moment ſuſpended, when they ſhould have fallen with their greateſt force on the perpetrators of ſo much murder and aggravated cruelty as took place on that occaſion, and whoſe records, while they exiſt, will ſerve as the greateſt proof of their iniquity.

The bay, which gives ſhelter to all ſhips bound hither, is ſituated in the ſouth end of the iſland, between Point Allang and Point Nooſſaniva, lying nearly E. ¼ N. and W. ¼ S. of each other, at the diſtance of 6 or 7 miles, and in latitude about 3° 38′, and longitude (Point Allang) 128° 8′ Eaſt of Greenwich; the courſe up the middle of the bay is about N. E. by E. diſtant from Point Allang 14 or 15 miles, up to *Fort* or *Caſtle Victoria*, which is built on the ſtarboard ſhore of what is called the outward harbour: in going up there is no danger, the ſhores, which are beautiful and luxuriant, being ſteep-to, and bold on both ſides; nevertheleſs it is always prudent (in all ſituations) to give the points a proper birth. The fleet, of which the *Thames* made one ſixth of the company's ſhips, entered the bay on the eve of the 8th of ----------, and found the tides ſetting at a moderate rate, and as far as I could obſerve, from point to point, and, as in every other ſimilar ſituation, ſtronger when you paſſed their extremity: at that time the tide of ebb was ſetting out, and we were adviſed by the Dutchman who came off to ſome of the ſhips, to keep the larboard ſhore on board, which we did till nearly up with Fort Victoria. Abreaſt and below this fort the fleet anchored at midnight, in from 35 to 50 fathoms water, rather foul bottom, about half a mile diſtant from the ſtarboard ſhore. Very deep water is found all over this bay, which carries 40 and 50 fathoms cloſe into each ſhore, together with bad and foul anchoring ground, by which two of our fleet had their cables cut: it is ſubject beſides in the north and weſtern Monſoons to ſtormy weather, at the full and changes of the Moon; and all theſe make it, in my opinion, neither very ſafe nor commodious for ſhips of any burden to remain long in; and at the time we were there it was by no means a place to afford refreſhments, for during our ſtay at Amboyna, we could not procure a ſingle freſh meal for the ſhips of the fleet.

The garriſon had on their firſt arrival ſometimes bullocks from Bouro and the neighbouring iſlands, though I believe in no great quantity; but they had before our arrival drained them of all their ſtock, and were living nearly on ſalt proviſions. I likewiſe ſaw a few turtle and deer, that were likewiſe brought from ſome of the other ſhores. We ſtaid in this bay till the latter end of February, and conſequently at the ſeaſon when the northern or weſtern Monſoon was blowing. In general we had land and ſea-breezes, with a deluge of rain, at times falling in heavier ſhowers than is commonly met with in any other ſituation, but among the iſlands in theſe ſeas: we had alſo ſtrong gales at the full and change of the Moon, and I would in conſequence recommend all ſhips that moor here in this ſeaſon to lay their anchors nearly up and down the bay, ſo that, in caſe of bad weather, they ſhould ride between both; this circumſtaace, I think, is of great conſequence, as there is no room to drive towards the eaſtern ſhore; whereas, if the wind ſhould come to blow off the eaſtern ſide,



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which ſeldom or ever is the caſe at this ſeaſon, the worſt that can happen is driving off the bank acroſs the bay, where there is another that will bring her up clear of the ſhore.

Juſt below the caſtle there is a ſand, which extends farther off in that ſituation than in any other part, near which the *Glatton* lay in 34 fathoms, and cloſe within her had very ſhoal water. There is alſo anchorage in a ſmall bight to the ſouth of that point, called in the chart *Point Batuſapew*, and when at anchor off the fort makes to the S. W. Before bad weather there is commonly a large ſwell tumbling into the bay, to warn you of its approach, when the ſmall ſhips frequently take up their anchors, and run into what is called

### *The Inner Harbour.*

THIS lies farther up the bay, and the paſſage leading from one to the other being narrow, it requires ſomebody well acquainted with the channel to take a ſhip through; it is ſpacious, and ſafe for the largeſt ſhips, being ſheltered from all winds and ſea, except at the entrance, which is in a great meaſure protected by the narrowneſs of the paſſage. It is in general thought to be very unhealthy; ſome of the ſhips have experienced great ſickneſs there, when thoſe in the outer harbour were perfectly healthy. On the larboard ſide of this harbour, and about 7 or 8 miles from where the ſhips lay, is the watering place, up a ſmall inlet; it is a fine full river running down from the rocks, and with hoſes you can fill your butts in a very ſhort time, ſeventeen in half an hour. It will be neceſſary to get the boats in and out as near high water as poſſible. Our long-boat, when full loaded, would but juſt float at the top of high water: you will be directed to the waterfall by two houſes, which are ſituated at about a muſket-ſhot of each ſide of it. To the eaſtward of this is another bay, which is not frequented by ſhips; it is ſeparated from the inner harbour by a ſmall iſthmus that divides the Amboyna ſide, named *Leytimore*, from the weſt ſide which is called *Hetoi*, or *Hiettoo*.

## INSTRUCTIONS FOR SAILING THROUGH THE MOLUCCAS, AND THE ADJACENT ISLANDS.

By Captain V. V. BALLARD, of His Majeſty's Ship the *Hobart*, and Lieutenant HENRY MOOR.

THE iſlands of TERNATE, TIDORE, MOTYR, and MACKYAN, adjacent to the weſt coaſt of Jelolo, and ſituated between the Equator, and the firſt degree of north latitude, were formerly conſidered as the principal, and even as the only SPICE ISLANDS. The nutmeg-tree and the clove-tree being diffuſed in theſe iſles, in a much greater quantity than at Amboyna, Banda, or any other iſland; but the Dutch, wiſhing to appropriate theſe valuable trees excluſively to themſelves, forced the ſovereigns of the former iſlands to deſtroy the plantations of them: at their courts they kept agents who were very ſtrict in their viſits; and theſe trees were allowed to be cultivated only at Amboyna, Banda, and the other iſles which were under the immediate dependency of the company, and where they could exerciſe a continual ſuperintendence. This inquiſition, introduced by Dutch cupidity, was ſingularly

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ſingularly counteracted by the birds, which go and depoſit the ſeeds of the ſpice-trees in the iſlands circumjacent to thoſe where they are cultivated; this had determined the company alſo to fix there reſidents, whoſe principal miſſion was to make conſtant reſearches, in order to deſtroy all thoſe which they might meet with: often, indeed, the trees happen to be ſown in places ſo ſteep, that they muſt eſcape the moſt active efforts of the deſtroyers.

"TERNATE, the northernmoſt and largeſt of the former ſpice-iſlands, is very ſmall, and remarkable by its volcanoes. It has a fortreſs, called *Orange Fort*, on the eaſt ſide of the iſland, which is bold-to, in 0° 48′ north latitude, and 127° 20′ eaſt longitude, and an iſlot off its north end.

"In a ſouthern direction lie the iſles of TIDORE, MOTYR or MOTTIRE, MACKYAN, &c. In Tidore there is tolerable anchorage on the eaſt ſide in 30 fathoms, ſand. All thoſe iſlands are bold-to, and have a paſſage between them.

"The only danger conſiſts of two ſmall ſand banks lying Eaſt 5 miles from the middle of the paſſage between Tidore and the next ſouthernmoſt iſland. Thoſe ſand banks are in the fair way coming from Tidore to the entrance of the *Straits of Patienta*; but they may be ſeen, particularly in the day-time, as they are very white; and when the ſun ſhines on them they are very conſpicuous. In the night you keep Jelolo ſhore on board, and there is no danger.

"The ſmall iſlands and rocks lying to the S. E. of Mackyan, and named after the latter iſland, are not dangerous, moſt of them ſhewing themſelves: the *Wolf* Rock is the northernmoſt, juſt awaſh with the water, and lies in latitude 0° 14′ North, according to Captain *Hill* of the *Orpheus*.

"To the ſouthward of thoſe iſles lies the Iſle of *Batchian*, about 18 leagues long; the Iſlands of *Tewally* and *Maregodang*, with the numerous iſles interſperſed, from the weſtern ſide of Batchian Straits, are all bold-to, and may be approached without fear.

## *Entrance of Goonong Talla, or Goonong Telloo River.*

"THIS lies on the north ſide of the *Bay of Tominie*, or the north-eaſt arm of Celebés and to the weſtward of Batchian, in latitude 0° 28′ 30″ North, and 123° 0′ longitude Eaſt. It was ſubject to the Dutch, who had a good fort on the river, with two ſmall ones at the entrance. They now hoiſt Engliſh colours, ſince the *Bombay* company's cruizer took poſſeſſion of the whole in 1797. We have there no reſident, nor any perſon whatever at this time. The *Nogery*, or town, is about 2 miles up the river; ſhips can only anchor in its entrance; the currents which, from the high mountains, where it takes its ſource, run with rapidity after heavy rains, waſh down the ſand, and fill up the bed of the river.

"On the eaſtern ſide, juſt within the entrance, are two ſmall coves, either of which a ſhip may haul into, and lay ſheltered from the very ſtrong freſhes that come down the river: immenſely large ſtones lie on the beach in theſe coves, and are very convenient for mooring-to.

"The ſea-wind ſets in about 11 o'clock, and continues till about 4 or 5, when the land-



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wind pours down from the mountains, very often blowing ſtrong. A ſhip can therefore ſtop in from 30 to 56 fathoms, under the eaſtern point of the entrance, till the ſea-wind ſets in; then ſhe can proceed into either of the coves, or anchor in the mid-channel cloſe to the fiſhing-ſtakes.

" Refreſhments of all kinds are to be procured here; buffaloes, bullocks, ſheep, and goats, in great abundance; likewiſe horſes, ducks, fowls, &c.

" The natives are chiefly Mahometans, and carry on a great trade in wax and gold duſt.

" Note.—Between the north-eaſt end of Celebés and Ternate lie two ſmall iſlands named *Tyfore* and *Mayo*, tolerably high, with a good paſſage between them. *Tyfore* lies in 1° 2′ north latitude, and in 125° 58′ eaſt longitude. *Mayo* lies N. E. by E. 7 leagues from Tyfore, in latitude 1° 23′ and longitude 126° 7′.

## *North-eaſt End of Celebés, with its Bays and Harbours.*

" THE extreme point of Celebés is named CAPE COFFIN; at a little diſtance from it lie the *Banca* iſlands, between which and the cape are the ſtraits of that name, and a good paſſage.

" To the ſouthward of Cape Coffin is the Iſle of *Limba* or *Lombo*, ſeparated from Celebés by a narrow channel, very intricate, but not dangerous, there being anchorage in the narroweſt part, cloſe to the Celebés ſhore.

" To the weſtward of Cape Coffin is the anchorage of *Manado*, in 29° 40′ north latitude, and 124° 30′ eaſt longitude, obſerved by M. *Naſh*.

" KEMA or KEMAR Roads lie in latitude 1° 22′ North, longitude 125° Eaſt. Here there is good anchorage, from 11 to 13 fathoms, bringing the iſlet off the ſouth end of Limba to bear N. 76° E. Celebés to the ſouthward S. 11° W. Mount Chabot N. 36° W. The Brothers N. 28° E. off ſhore 1½ mile: thoſe bearings have 13 fathoms; but this depth to anchor in is only neceſſary in the weſterly Monſoon; for during the eaſterly one, you can anchor much nearer in 11 fathoms.

" This place is eaſily known by the high mountains, amongſt which *Mount Chabot*, the ſouthernmoſt, is very high; the northernmoſt lie on the extreme of Celebés, and is named the *Brothers*: theſe mountains may be deſcried 90 miles * off; and I have ſeen them in 12′ South of the Line.

" Here a ſhip may get refreſhments, and good water. We have a reſident at this ſtation, but no fort. You may coaſt along this ſhore to the weſtward within 3 miles, and in many places much nearer, till you get the length of CURRENT ISLAND, about which, on its weſt ſide, are ſome rocks ſtretching out 2 miles: but to the weſtward of theſe you may approach the coaſt as near as you pleaſe.

" Round to the N. W. of Current Iſland 3 miles is a bay having ſoundings from 50 to 25 fathoms, muddy bottom, one mile from ſhore, where a ſhip might anchor, if neceſſary,

* According to that diſtance, the height of thoſe mountain is only $\frac{1}{7}$ inferior to that of the Peak of Teneriffe.

To

To this bay I gave the name of ELPHINSTON's BAY, that Captain having taken the trouble of ſounding part of it himſelf.

" From this bay to the weſtward, as far as Goonong Tella, the ſhore is quite high and bold, without the leaſt danger, nor do the currents run ſo ſtrong as to the eaſtward of Current Iſland."

## *Xulla, (Shulla or Shoolla) Beſſy Iſlands*

" ARE four in number, three lying nearly Eaſt and Weſt, namely, *Laſſamatoola*, which is the eaſternmoſt, SHOOLLA-MANGOLA, and SHOOLLA-TALJABO; the other is SHOOLLA-BESSY, which lies to the ſouthward of the three others, and extends in a N. by W. and S. by E. direction: its north-eaſt part is in 1° 58′ South. A coral reef runs from the north end round to its weſt ſide at the diſtance of 2 or 3 miles, ſo that the channel between that north end and Shoolla Mangola is not more than 4 miles. The Mangola ſhore is bold, and affords good anchorage, from 30, to 32 and 35 fathoms, muddy bottom.

" In that channel, which lies nearly Eaſt and Weſt, the currents run about 4 miles an hour; they are ſhifting, and put on the appearance of a tide. In going through keep the Mangola ſhore on board, till near the ſmall iſland, which is to the weſtward of the paſſage; then ſhe may haul to the ſouthward.

" Shoolla-Beſſy is well inhabited, and appears to be the only one of thoſe iſlands which is fertile, or at leaſt where a ſhip could get refreſhments. On the eaſt ſide the Dutch have a fort, and are ſtill in poſſeſſion of the iſland.

" The eaſternmoſt point of Laſſamatoola is in 0° 50′ ſouth latitude. The Dutch lay good paſſages between Mangola and Taljabo, both inhabited, with regular ſoundings on the north ſide of them."

## *Remark.*

" A SHIP working up in the N. W. Monſoon, to Celebés, or the MOLUCCA PASSAGE, ſhould keep along the Shoola-Beſſy iſlands, taking care to fall in well to the weſtward, as the north-eaſt current ſets ſtrong along to Celebés ſhore all the year round. In that paſſage we miſſed Kenmar Roads, through the ignorance of the Dutch pilot, by not hauling up in time, although we made to the eaſtward; being in conſequence ſet to the N. E. we were ſome days working up.

" But a ſmall ſhip, if bound round the north ſide of Jelolo, I would adviſe to go through the STRAITS OF BATCHIAN; between Maregodang on the Weſt, and Batchian iſland on the Eaſt. Their ſouthern part is very broad, and you have good anchorage all through; in the northern part the tides are very ſtrong. To the eaſtward of thoſe ſtraits are thoſe of PATIENTA, formed by Batchian on the Weſt, and Jelolo on the Eaſt. They are ſaid to be preferable to thoſe of Batchian, being much wider, but the anchorage is deep, and in ſome parts you have no ſoundings.

*The*

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## *The Straits of Saleyer.*

"SALEYER ISLAND lies in a direction North and South, extending from 5° 56′, to 6° 27′ South. Off its north end are three iſlands, called *North*,* *Middle*, and *South*. In paſſing South iſland, give it a birth of 2 miles, by reaſon of ſome rocks above water off its ſouth end. Middle iſland has, to the northward of it, a ſmall ſand bank, of which the *Amboyna* country-ſhip gives the following account. Paſſing through, between North and Middle iſlands, ſhe had no bottom at 60 fathoms; the firſt ſoundings were 15, 11, 9, and 8; Middle iſland then bearing South 2 miles. Hauled a little to the ſouthward, when they deepened to 55 fathoms in 3 caſts; then no bottom: they report it to be a bank of rocks.

"The ſhoal to the weſtward of the Straits of Saleyer lies in latitude 5° 43′ South, and is placed by M. *Moor*, according to the above ſhip's account. After weighing from *Boolo-Comba* Roads, ſhe ſtood S. S. E. 3 miles, then South 7 miles, when they ſaw ſhoal water cloſe-to; tacked, and juſt cleared it a ſhip's length: when the ſhoal bore South 1 mile, had 10 fathoms, with the following bearings; Flag-ſtaff at Boolo-Comba, N. W. 10 miles; weſt extreme of Celebés W. by N.; Eaſt ditto E. ¾ N.; North iſland E. ¼ N.; North point of Saleyer S. E. ¾ E.

"They ſay this ſhoal is circular, and ¼ a mile in extent: the water was of a greeniſh colour, except in one place, where a ſmall black rock ſtood juſt awaſh with the water, which being perfectly ſmooth, could only be ſeen at times as it rippled over it.†

"The *Brill Shoal*, to the South of Tanakeka iſland, lies in latitude 6° South, and about 36 leagues diſtant from Middle iſland."

* Or *St. Andrew's*, *St. George's*, and *St. Patrick's* iſlands.

† Captain *Hogan*, of the ſhip *Marquis Cornwallis*, who went through the Straits of Saleyer in 1796, deſcribes them as follows:

"Auguſt 16th, at ½ paſt 2, paſſed between the iſland of *St. George*, and *St. Patrick*, or *South* iſle, within a ſmall mile of the latter; hauled up to give the *Holland's Rudſon's* ſhoal a good birth.

"At 4 we paſſed a large town on the iſland Saleyer, where I ſaw a prodigious number of proas hauled up; off this town appears good anchorage, clear ſandy bottom. In hauling round South Iſle, I found a very rapid tide, or the ſhip over a long ſhelf, extending to the S. W. of the iſland; this ſhelf runs out from the flat which lies between Middle Iſle and Saleyer, and has deep water all over it. We could plainly ſee the bottom about ½ of a mile from our maſt-head; but on it, as well as through the paſſage between Saleyer and South Iſle, I am of opinion there is water enough for any ſhip to come through that narrow channel; it will of courſe be a matter of neceſſity, in ſuch a caſe, to keep mid-channel, with a good look-out from the maſt-head, and you will be carried through a ſpace of about ½ a mile, which has deep water between the two reefs, running from Saleyer and Middle iſle towards each other. In that ſpace there is no broken water, and it appeared to us deep. I could not aſcertain the riſe and fall of the tide, it being about low water when we paſſed through. Did a ſhip," concludes Captain *Hogan*, "want water or refreſhments, in coming through theſe ſtraits, I certainly would recommend her to anchor at the *Town of Saleyer*; in that caſe ſhe ſhould haul up, round South iſle, giving it the birth of a mile, and ſteer along ſhore as near as ſoundings and prudence will admit. Her courſe will be S. by W. and South, and perhaps S. by E. till in the anchoring birth, oppoſite the town, which is about 3 miles from the ſouth point of South Iſland.

*Booton*

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*Booton—the Great Toocan-Beſſys—Velthoens—and St. Matthew's Iſlands.*

" BOOTON lies in a direction nearly North and South, from 4° 30′ north latitude, to 5° 42′ South.

" The ſmall iſland *Hagedis*, lies 14 leagues ſouthward of the ſouth end of Booton.

" The GREAT TOOCAN-BESSYS, to the eaſtward of Booton, are four in number, and about 10 leagues in circumference: the two weſternmoſt and largeſt extend 12 or 14 miles in a S. W. by S. and N. E. by N. direction; the two ſmaller ones lie on the eaſt ſide of the large ones, and do not appear as ſeparate iſlands. In running between Booton and them, the northernmoſt lies due Eaſt 20 miles from the eaſtern projecting point of Booton, and may be ſeen 10 leagues.

" The Northern Beſſy may be approached without fear within 2 miles on its north, north-eaſt, and weſt ſides. I have been at the diſtance of 1½ mile, ſaw no danger, and had no bottom at 50 fathoms. I firmly believe the ſouthern one to be on its weſt ſide equally ſafe, ſo that thoſe iſlands are by no means ſo dangerous as they have been repreſented; dangers there are, but they are on the ſouth-eaſt ſide. This I obſerve, as many ſhips, in order to give the Toocan Beſſys a great birth, have fallen into the northward of Booton.

" The ſhip *Marquis Cornwallis*, in coming this track in 1796, we fell into the northward, and could not work up along the Booton ſhore, which obliged us to go to Booton Straits: this happened merely from our anxiety to give the Toocan-Beſſys a large birth.

" The currents in the eaſterly Monſoon ſet ſtrong to the northward along the Booton ſhore, which makes it neceſſary to round thoſe iſlands cloſe, in order to weather the ſouth-weſt of Booton.

" A country-ſhip having paſſed, in 1799, through among the ſhoals to the South of the Great Toocan-Beſſys, in the parallel of from 5° 50′ to 6° 0′, ſaw ſeveral ſand-banks, breakers, and ſome low iſlands, and reports them to be by no means dangerous, with a commanding breeze; from the deſcription of that ſhip, they muſt be badly placed in the charts, as ſhe appears to have ſteered a weſt courſe through them.

" To the ſouth-eaſtward of the Great Toocan-Beſſys is the Iſland of VELTHOENS, about 5 miles in circumference, low, covered with trees, and ſurrounded by high breakers, running about 3 miles from it*. It lies nearly S. W. from Amblau (which is at a ſmall diſtance off the ſouth end of Bouro) diſtance about 200 miles by eſtimation. I fell in with it, coming from Bouro, and ran for it till it bore S. 11° W. 6 miles, when we ſaw the two iſlands of St. Matthew bearing N. 34° W. 15 miles; when we hauled, night coming on. We were exactly in that ſituation where all the Dutch and Engliſh charts place that extenſive ſhoal which nearly fills up the paſſage between Velthoens and St. Matthew's iſlands; but we could not from the maſt-head diſcover the leaſt appearance of it, nor any breakers,

* It is the *Eaſternmoſt Iſland* of the Toocan-Bessys, of the *Henry Addington*, 1796, and of the *Thames*, 1797.



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as far as the eye could reach, except round the iſland; although at that time a very heavy ſea was running, as it blew freſh. We could ſee a range of land bearing from S. W. to W. by S. tolerably high. I judged it to be about 20 miles diſtant; but whether it was one or more iſlands I could not determine.

" If the ſhoal abovementioned be not imaginary, it muſt lie much farther to the weſtward, and cannot be but of ſmall extent; this I am confident of, as no ſhoal exiſts in the direction of N. W. from Velthoens to the iſles of St. Matthew. From what I ſaw I could have no objection to run through in the day time, between thoſe iſles and Velthoens, and ſteer a weſt courſe for the Great Toocan-Beſſys. N. B. I don't recommend any perſon to approach any of them without caution, and a good look out; I only mean that they are not ſo dangerous as it is ſaid.

The Isles of St. Matthew, two in number, bear from Velthoens N. W. about 21 miles; they are rather higher than Velthoens, and covered with wood; I think they may be ſeen at 6 leagues diſtance. They extend 15 miles in a S. W. and N. E. direction, the ſouthernmoſt being the largeſt, and the opening between them is about 4 miles wide. They are ſurrounded with breakers running out 4 miles from the ſhore.

## *Booro* or *Bouro.*

" THIS iſland is high, and extends from the eaſt point in latitude 3° 23′ South, and longitude 127° 10′ Eaſt, to the weſt end in latitude 3° 6′, and longitude 125° 57′. The eaſt point bears from Allang Point, or Amboyna, W. 26° N. diſtance 55 miles, and from the little iſland off the weſt ſide of Manipa, W: 17° S. 17 miles, which is the breadth of the channel between the latter iſland and Bouro, in which channel the current ſets generally to windward, or againſt the Monſoon. The northern extremity of Booro is in 3° 2′ South, and the ſouthern in 3° 5′ 3″: all its ſhore is bold, except off this ſouthern extremity to the eaſtward, between which and Amblau lies a reef of rocks 5 miles from Booro ſhore.

" Manipa, and the north ſide of Booro Bay, bear nearly Eaſt and Weſt. This bay is on the eaſtern ſide of the iſland, and may be eaſily found by bringing the body of Manipa to bear Eaſt; when ſteering in for the bluff point on the ſouth ſide of the bay, care ſhould be taken in rounding that ſouth ſide, not to haul round till the high land to the North of the town is on with a point at the bottom of the bay, which will be eaſily diſcovered; or till it bears S. W. this ſouth point being foul nearly 2 miles out. Stand down the bay till you bring a remarkable hill, which lies on the ſouth ſide, to bear S. E. by S. or to the eaſtward of S. E. by S. then you may haul in for the anchorage off the town.

" The anchorage is in 27 and 30 fathoms, muddy bottom; the north point bearing N. ½ E. the fort S. ½ E. ſouthern extreme of the bay N. E. off ſhore ½ a mile.

" In ſtanding down, do not go to the weſtward of the fort, by reaſon of a hard ſand which encircles the bottom of this part of the bay. Here you are well ſheltered in both Monſoons; the land-winds are freſh at night, which enables a ſhip to get out of the bay

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bay without difficulty. The tides are not regular; the riſe and fall is about 6 feet. The latitude of the anchorage is 3° 21′ South, the longitude 127° 0′ Eaſt.

" Refreſhments and water are to be procured at this place; the iſland, remarkable for a great number of deer, is very fertile, and capable of producing any thing which grows in theſe climates; it affords alſo the beſt *cayputy oil*. Good ſpars for maſt, from the Dorien-tree, can be got here; there is another kind much lighter, but not ſo durable; the natives cut and bring them down at a moderate price.

" We have a reſident on this iſland.

## *Ceram and the ſmall adjacent Iſlands.*

" CERAM is very high, and extends from its ſouth-weſt point to Keffing point, E. 6° S. 165 miles, having on the ſouth ſide two deep bays, named *Lahoo* and *Amhay*: the coaſt on that ſide is bold, except *Hoya Point*, off which lie ſand banks, with a ſmall ſand iſland, but which do not extend more than 2 miles out. Within 7 leagues of Keffing point a coral reef begins, and edges the ſhore all the way to the eaſtward, taking in the little iſland *Keffing*, ſeparated from the main iſland by a narrow gut of water, which at a ſmall diſtance cannot be diſtinguiſhed. The S. E. point of Keffing is in latitude 3° 55′ South, and in 130° 40′ eaſt longitude.

" WHAKKO BAY, on the north-eaſt part of Ceram, is in 3° 25′ latitude, and 130° 36′ longitude; it has good anchorage, water, and other refreſhments.

" SAWA BAY lies under the north-weſt point of Ceram; its latitude is 2° 51′ South, and longitude 128° 8′ Eaſt: in the eaſterly Monſoon it is well ſheltered; here the anchorage and the water are very good.

" Ceram, on the north ſide, is free from danger, till you approach the *Coppateo* or Leeuwaarden *Shoal*, which lies off the north-eaſt part of it, and forms the weſtern ſide of Whakko bay. It lies in latitude 2° 56′ South, 7 miles from the ſhore, and is very dangerous; the *Venus* country-ſhip ſtruck on it in 1799. Some ſhips have gone within it, and report it to be a good paſſage.

" At Lahoo we have a ſerjeant, and keep up the Dutch fort, which is the only place we occupy on Ceram.

" From Ceram the Dutch imported the greateſt part of their ſlaves into the Moluccas. Before this ſlave trade had been eſtabliſhed, the iſlanders of Ceram practiſed the barbarous cuſtom of eating the priſoners they had taken in their battles. It is painful to learn, that they have abandoned this atrocious habit, only becauſe they derive a greater profit from the ſale of their captives. If there has reſulted from it an apparent good, in other reſpects, it has with them been a more frequent occaſion of war. Man, obſerves the author of this remark, muſt be arrived to the loweſt ſtate of degeneracy, for the introduction of ſlavery to have been able to put him in the road of civilization.

" To the weſtward of Ceram near its weſt end lie three ſmall iſlands; the firſt is BABY or *Poolo Baby*, lower than the other iſlands, and cloſe to Ceram, from which it is ſeparated



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by a paſſage for proas only, and ſmall craft. The next weſternmoſt is KELANG, which is high, lying cloſe to the former, but no paſſage. To the weſtward of Kelang lies MANIPA; the channel between them, 4 miles broad, is ſafe and good. On the ſouth ſide of Manipa, ſtands the fort, off which, and within a ſmall iſland, you have good anchorage cloſe to the ſhore. Here we have a ſergeant as reſident.

" Off the weſt end of Manipa, diſtance 1½ mile, lies a ſmall iſland, between which and Manipa is a ſafe paſſage for a ſhip of the largeſt draught of water.

" Seven or 8 miles to the weſtward of the weſternmoſt point of Ceram lies BONOA, 3 miles from the main ſhore, from which it is ſeparated by a good channel. About 38 miles N. E. by E. from Bonoa you come to MATTELINA, having from Sawa bay a ſafe paſſage 4 miles wide, with 15 to 30 fathoms between it and Ceram. Further up in the ſame direction you meet with a ſmall iſland, which is foul, and then with the Seven Iſlands, among which you have good ſoundings.

" To the eaſtward of Ceram, and of the coral reef which encircles Keffing, and the ſmall iſland Eaſt of it, lies an iſlot between which and Keffing is a good channel, about 3 miles wide, with 30, 50, and 40 fathoms, mid-channel: you have 5 and 10 fathoms cloſe to the reef. Then a ſafe paſſage, but not more than one mile broad, brings you to

" CERAM LAUT, which bears Eaſt from the ſouth point of Keffing 18 miles. This iſland, with the ſmall ones to the eaſtward of it, is ſurrounded by a continual reef, extending nearly 17 miles.

" There are three other iſles, the eaſternmoſt of which is GORAM, in 131° 34′ Eaſt longitude; to the weſtward of this is a good channel, but none between the next outermoſt iſland and Ceram Laut."

## AMBOYNA

" IS the largeſt of the iſlands denominated the *Clove Iſlands*, which are properly 4 in number, 3 lying to the eaſtward of Amboyna, *viz. Haraucka*, **Saparoua*, and *Nooſſa Laut*. Amboyna is now the chief reſidency of the Britiſh poſſeſſions in the Moluccas.

" *Fort Victoria*, the ſeat of government, and the capital of the iſland, lies in latitude 3° 42′ South, and by numerous aſtronomical obſervations in 128° 11′ 40″ longitude† Eaſt of Greenwich.

" The bay is formed by *Allang* and *Nooſſaniva*. Allang Point in latitude 3° 48′ South, bears Eaſt, 8 miles from the former, and 12 miles S. W. by W. ½ W. from the anchorage.

" About 3 cables' length from Nooſſaniva, in a S. S. E. direction, lies Eaſt and Weſt

* Haraucka and Saparoua are named *Oma* and *Hoinua* in the Dutch charts.

† *Bertrand* the aſtronomer, on board *d'Entrecaſteaux's* ſhip, 1792, erected an obſervatory near the weſtern extremity of the town, and found its latitude to be 3° 41′ 49″ South, and its longitude 126° 9′ Eaſt of Paris, or 128° 29′ from Greenwich.

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about one cable in extent, a narrow bank of ſand, having 35, 15, and 56 fathoms, according to Lieutenant *Pulham*, who ſounded on it: it has no communication with the ſhore, for when Allang Point is juſt touching and opening with Nooſſaniva, you have no ground at 90 fathoms; you are then two cables' length from that point: this bank, which the Dutch place $1\frac{1}{4}$ mile from ſhore, might do for an anchorage in a calm or great neceſſity.

" In the weſterly monſoons you ſhould round Allang cloſe, it being bold ſhore; but in general ſtrong currents ſet round all to the north-weſtward. In the eaſterly monſoon you muſt work up till you bring Nooſſaniva point to bear N. N. E. before you ſtand in for the bay, and you will then only fetch that point.

" There are no ſoundings in going up Amboyna Bay till within half a cable's length of the ſhore, and in many places not that, till you get up to *Portugueſe Point*, which is on the eaſt ſide of the bay, diſtant about $1\frac{1}{4}$ mile from fort Victoria, and known by its little battery in ruins.

" Ships coming up with baffling winds, ought to keep on the eaſtern ſide if poſſible, that, in caſe of it falling a calm, they ſhould not ſo likely be drifted by the currents or tide, which are here very irregular, being chiefly influenced by the rains and winds.—The riſe and fall of water is 7 feet.

" The beſt anchorage off Fort Victoria, is abreaſt and above the wharf, in from 20 to 35 fathoms. Moor with the cable or hawſer to the anchors, which are placed at convenient diſtances on the ſhore for that purpoſe. The bank of anchorage is very ſteep, and I have known ſeveral ſhips driven off by neglecting the above precaution.

" From Fort Victoria to the oppoſite ſhore, the diſtance is 2 miles, and in the mid-channel there is bottom at the depth of 100 fathoms; ſhips may go farther in the Inner Harbour, and carry good ſoundings.

## *Haraucka*

" IS the next iſland to the eaſtward of Amboyna; between them there is a good channel nearly $3\frac{1}{4}$ miles wide: on the northern entrance of that channel lies a ſandy iſlot, which narrows it to one mile. The Haraucka ſhore abreaſt of the iſlot is foul, but cloſe to the iſlot itſelf there is no danger. Haraucka has a fort on the weſt ſide, and we have a reſident there.

## *Saparoua*

" LIES next to the eaſt of Haraucka; its ſouthern extremity, called *The Dolphin's Noſe*, bears E. 6° N. diſtance 35 miles, from Point Nooſſaniva at Amboina; and the channel between it and Saparoua is not more than one mile in the narroweſt place, with ſtrong currents or tides, and no anchorage: in going this paſſage you are to keep on the Haraucka ſhore. The little iſland of *Moolana* lies at the ſouthern entrance of this paſſage,



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but nearer to the Saparoua ſhore. This iſland has likewiſe a fort on its ſouth ſide, with an Engliſh reſident.

### *Nooſſa Laut*

"IS the eaſternmoſt and ſmalleſt of the Clove Iſlands, and bears from Noſſaniva Point E. 13° N. diſtant 41 miles. The channel between it and Saparoua is about $2\frac{1}{2}$ miles wide, and very ſafe, the ſhore of the latter being very bold on that end.

"Nooſſa Laut is foul all round about $\frac{1}{4}$ mile. Here is a ſerjeant as reſident, and a fort on the weſt ſide.

"All thoſe iſlands are of a moderate height; but at a diſtance cannot be diſtinguiſhed from the main of Ceram, which lies at their back to the North, cloſe-to, and is much higher than them. In working between them and Ceram, when abreaſt of the paſſage of Saparoua and Haraucka, do not ſtand too cloſe to the north-weſt point of the former, it being foul about one mile; give alſo the ſhore of Haraucka a birth of $\frac{1}{4}$ of a mile, eſpecially on the north-weſt end, which forms the entrance of the paſſage between it and Amboyna. The north ſhore of Amboyna is quite clear; and the Ceram ſhore, abreaſt of Saparoua and Haraucka, is likewiſe bold.

"Between the ſouth-weſt point of Ceram and Amboyna lie thoſe ſmall iſlands called the THREE BROTHERS, which are bold-to, and have a ſafe paſſage between them all, even between the ſouth Brother and Amboyna. Between the north-weſt Brother and Ceram the channel is 5 miles broad. The currents ſet rapidly, and not very regular, through thoſe iſlots."

### *Remark.*

"GOING from Amboyna to Banda, during the eaſterly Monſoon, in the months of July, Auguſt, and September, I would adviſe a ſhip to ſtretch over to the ſouthward, when ſhe will in general fetch the coaſt of Timor, and find there the eaſterly current running ſtrong; the wind frequently then comes more ſoutherly, which enables her from thence to lie upon the ſtarboard tack, N. E. by E. and fetch Banda. This will be performed in ſix days, when the route to the northward of Ceram, and round the eaſt end of it, very frequently takes up a fortnight."

## ISLES OF BANDA.

"THE ISLES OF BANDA are 10 in number; thoſe which form the harbour are BANDA or *Great Banda* on the ſouth ſide; GOONONG APEE (the Burning Mountain) and BANDA NEIRA, on the North, with two iſlands on the eaſtern entrance, one called POOLO PESANG or *Piſſang*, and the other, which is very ſmall, POOLO CAPPEL or *Cappa*, ſo named from its reſembling a ſhip's hull. Thoſe iſlands are high, conſequently you are ſubject to very ſudden guſts of winds; and in the day it is very hot and oppreſſive; but I found nights cool.

"The

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" The anchorage, in latitude 4° 31′ South, and longitude 130° 0′ East, is at the foot of the Burning Mountain, which ſmokes almoſt continually, and from which proceed frequent earthquakes, whoſe ſhocks are ſometimes repeated 3 or 4 times in a day.

" To ſail into Banda Harbour by the *Eaſtern Channel* there is no difficulty, giving the ſhore of Great Banda, and that of Banda Neira, a birth of ½ a mile. The channel is 3 miles wide after you are paſſed Poolo Peſang and Cappa, which may be left on either ſide. The anchorage is abreaſt of the wharf at Banda Neira, in 7 or 8 fathoms: and to anchor clear of the *Orpheus's bank*, which has only 15 feet on it at low water, ſpring tides, do not ſhut in the eaſtern point of Great Banda with the low or ſouth-eaſt point of Banda Neira; *Poolo Ay*, commonly *Pooloway*, juſt ſhut in with the point of Goonong Apee; and *Battakeeka* Fort on the hill N. by E. ½ a mile from the wharf.

" A ſhip ſhould moor here directly, on account of the tides being very ſtrong. It flows at the wharf two o'clock at full and change, and the riſe is 10 feet: at the anchorage it is tide and half-tide, but not very regular, and it flows 4 o'clock.

" To come in by the *Weſtern Channel*, which can only be done in the weſtern Monſoon, you paſs between Goonong Apee and Great Banda; the paſſage is only ¼ mile wide, by reaſon of a reef which runs from Great Banda half channel over; this makes it neceſſary to keep cloſe to Goonong Apee, whoſe ſhore is ſteep-to: You muſt keep the end of Pooloway juſt touching open with the extremity of Goonong Apee; and this mark will bring you to the anchorage.

" This channel is uſed to come in during the weſterly Monſoon, and to go out in oppoſite one.

" There is a paſſage between Goonong Apee and Banda Neira, but it is very narrow, with rapid tides, and no good anchorage; it is ſeldom uſed, except by ſmall veſſels.

" Great Banda bears E. 23° S. nearly 115 miles from Nooſſaniva Point, on Amboyna; and from Keſſing Point, on Ceram, S. 47° W. 53 miles.

" To the Eaſt of Great Banda 4 miles lies the Iſland of Rosengayn; and to the weſtward are Poolo Way and Poolo Roon. Poolo Way bears nearly Weſt 7 miles from Goonong Apee, and E. by N. ½ N. 4 miles from Poolo Roon. Between them there is no ſafe paſſage. The moſt diſtant iſland is Poolo Swangy, lying N. ½ W. from Poolo Way.

" The iſlands which produce nutmegs are Great Banda, Banda Neira, Roſengayn, and Poolo Way. It appears that their ſoil and nature agree ſtill better with the culture of the nutmeg-tree, than thoſe of the iſle of Amboyna; for it is generally admitted that the nutmeg of the latter is inferior.

" Banda Neira is well fortified, particularly in the weſtern channel: it is the ſeat of government, and the reſident is under that at Amboyna; but in the time of the Dutch it was a ſeparate reſidency, ſubject only, like all the reſt, to Batavia.



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# ISLANDS IN THE BANDA SEA.

## *Turtle Iſlands—The Luceparas, Burning Iſland.*

THE TURTLE ISLANDS, which lie S. ¼ W. about 90 miles from Amboyna Harbour, are three in number, covered with trees and ſurrounded by coral reefs, which ſtretch about 2 miles out; their extent is not conſiderable, and their latitude is, I think, about 5° 15′ South.

"From thoſe iſlands, about 10 miles S. W. lie the LUCEPARAS, which are nearly of the ſame height, or ſomewhat higher. I was not near enough to ſay with certainty what dangers ſurround them; but from their low ſituation and their connexion with the *Turtle *Iſlands*, dangers may exiſt: however, I think this paſſage a ſafe one in the day time, giving the Turtle iſlands a birth of three miles. I could not from the maſt-head diſcover any danger in the direction of the Luceparas."—The *Taunton Caſtle*, who ſaw them Auguſt 28, 1797, ſay they are low woody iſlands, covered with trees, and cannot be ſeen from the deck above 4 leagues.

"BURNING ISAND lies in 6° 37′ ſouth latitude, and longitude 126° 21′ Eaſt: it is high, and may be ſeen at a great diſtance."

## *The Iſles of Camba, Wetter, Baba, Roma, and Damma.*

CAMBA, or *Kambing*, (called alſo Paſſage Iſland) is tolerably high, and remarkable by its peak; its ſouth-weſt point bears nearly Eaſt from the north-eaſt part of the great iſle of *Omba*, 7 or 8 miles; this channel is very good, both ſhores being bold-to:

"WETTER, or *Etter*, is a bold iſland, of a good height, and which may be approached without fear. Its north weſt end is in latitude 7° 40′ South, and in 125° 54′ eaſt longitude: off this point, between which and the ſouth-weſt point, the ſhore is foul, lies, at the diſtance of 2 miles, an iſlot called *Dog Iſland*. Off the ſouth-weſt point lies another named *Poolo Baby*, between which and Wetter there is no paſſage. It is not ſafe to ſtand to the Wetter ſhore, between Dog iſland and the north end of Poolo Baby, nor to bring the north end of that iſland to bear more ſoutherly than S. ¼ E. The Baby ſhore is bold-to on its weſt ſide.

"Poolo Baby bears from Camba N. 30° E. 7 miles, the neareſt diſtance, and the channel between them is very good, the Camba ſhore being quite clear, except off its north-weſt end, where it is foul about 1 mile.

"ROMA, called alſo *Teralta*, lies due Eaſt of the north-eaſt end of Wetter 37 miles. Its weſt point is in latitude 7° 38′ South, and in 127° 10′ Eaſt longitude. To the eaſtward

* The Turtle ſlands of Mr. *Moor*, though placed by him in the ſame latitude as the *Schilpalds Eylanden*, "the Turtle Iſlands" of the Dutch, are very different from them: Theſe, only two in number, lie about 145 miles E. by N. from the Luceparas. The three Turtle iſlands of *M. Moor*, muſt be the *Three Eaſtern Nooſſa Pinkes* of the the Dutch Charts."

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of it is *Little Roma*, off which, at a ſhort diſtance tothe N. E. lie two more iſlots; they are all bold-to, and may be approached without fear."

DAMMA, or *Damme*, lies to the E. N. E. nearly of Roma, the body of it in 7° 9′ latitude South.

## TIMOR

"IS in extent from N. E. to S. W. above 100 miles; its eaſt end lies in latitude 7° 36′ South, and longitude 127° 7′ Eaſt. It is very high and bold to on its northern ſhore. This iſland is divided between the Dutch, whoſe chief place is at *Coopang* on the ſouth-weſt end, and the Portugueſe, who have one of their chief ſettlements at *Dhelly* or *Deloo*, on the eaſternmoſt ſide. A ſhip can get ſupplied here with plenty of proviſions; the buffaloes are good and cheap; they have likewiſe a tolerable breed of ſmall horſes.

"DHELLY HARBOUR, which lies to the ſouthward of Camba, may be eaſily known; and by bringing the peak on the latter iſland to bear North, you are then off the entrance of the coral reefs which ſecure the harbour, running nearly parallel to the ſhore about 2 miles out: the breadth of that entrance being not more than 3 cables, you are obliged to take a pilot, who always comes off on ſignal given, or to place a boat on the reefs.

"The paſſage between the reefs is to the weſtward of the fort, near the weſtern point, which forms the bay; the inſtant you haul round the reef, you may ſhorten ſail, and the ſhip will ſhoot into an anchoring birth from 12 to 14 fathoms, muddy ground. On the beach ſtands a remarkable large tree, which you ſhould not bring to bear more eaſterly than S. E. by S. When at anchor, the bearings are as follows: Extremes of the bay N. 45° E. to N. 73° W. Camba N. 14° W. to N. 9° E. Poolo Baby N. 16° E. Wetter, weſt end, N. 23° E. Ombay N. 53° W. Flag-ſtaff S. 59° E.

"The ſea-wind coming in regularly, makes this harbour eaſy of acceſs; and the land-winds being ſtrong at night, you may get out without any difficulty.

"The tides flow at ½ paſt 1 full and change; but on the neaps they are not regular. Obſerve that the currents along this coaſt are very rapid, ſetting ſtrong to the eaſtward in the eaſterly monſoon.

"The natives appear harmleſs, they do not ſeem to inherit the implacable diſpoſition of the northern Malais; the Portugueſe rule their mind by prieſtcraft; the Dutch rule the body by diſcipline.

"KISSER is a ſmall iſland which lies N. by W. from the eaſt end of Timor. Here we retain the Dutch ſergeant at the fort, which is in the ſmall bay on the weſtern ſide, and whoſe latitude is 8° 5′ South. A ſhip may anchor in that bay during the eaſterly monſoon, and procure refreſhments and water. Kiſſer is bold-to, and the anchorage is the ſame.

"Off the eaſt end of Timor lies the ſmall iſland of *Jackee*, or *Nooſſa Neſſing*, diſtant 3 miles in an eaſt direction. Of the iſlands farther to the eaſtward, ſuch as *Leetie*, *Moa*, &c. as

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&c. as far as *Baberbolong*, I can ſay nothing with certainty, never having had an opportunity of viſiting them. The Dutch lay a paſſage betwixt them all, but except between Timor and Lettie, I ſhould approach them with caution."

## *Remark on the Eaſtern Paſſage to China.*

"SHIPS loſing their paſſage from Europe to China, through the China Seas, generally go through the Straits of Sapy, or Lombock; conſequently they are forced, in getting up to the northward, to navigate a ſea very little known, and full of dangers. I would therefore adviſe to paſs to the eaſtward of *Omba*, between it and *Camba*, keeping the wind, which will almoſt to a certainty enable them to fetch Bouro, when they may paſs between that iſland and *Manipa*, the current in thoſe ſtraits ſetting to the northward in the N. W. Monſoon, and the contrary way in the S. E.* one.

"They ſhould then ſtand up round the eaſt end of *Ooby Major*, paſs between *Patany Point* in *Jelolo*, and *Galey*, when they enter the *Pacific Ocean* to the northward of *Waygeoo*, which is called the JELOLO PASSAGE, and is a clear ſea.

"From this paſſage ſhips will find no difficulty in fetching up far enough to windward of *Luconia*, to within the *Baſhee iſlands*.

"Admiral *Ranier* went this paſſage in 1797, as did the *Orpheus* and *Arrogant* in 1800, and experienced no difficulty in fetching far enough from Luconia.

"I went by *Dampier's Straits*, in his Majeſty's ſhip the *Thames*, in 1790, and fetched far enough to have 5 or 6 degrees to ſpare."

"Should you not fetch *Bouro*, but fall in as far to the eaſtward of *Amboyna*, it is not more than 24 hours working into the paſſage between *Manipa* and Bouro; or you may make a fair wind of it, and run round to the eaſtward of *Ceram*, from whence ſhe will be able to paſs through Pitt's, or Dampier's Straits, and enter the *Pacific Ocean*.

"I offer this from a conviction of its being a direct, clear, and ſafe paſſage."

## *Monſoons.*

"THE north-weſterly Monſoon, in the ſeas we have been deſcribing, ſets in the latter end of November, but ſeldom blows with any regularity or ſpirit till the latter end of December. It continues till March, when it becomes variable, with heavy ſqualls.

"The ſouth-eaſterly Monſoon ſets in about the latter end of April, and continues till October, when it begins to be variable: its breaking up is not attended in general with ſuch heavy ſqualls as thoſe of the N. W. Monſoon."

* "I have not experienced thoſe ſtrong ſoutherly currents, Mr. *Robertſon* ſays ſo much about."



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# PACIFIC OCEAN.

## INSTRUCTIONS FOR ENTERING DAMPIER'S STRAITS FROM THE EASTWARD.

By Captain HOGAN, of the Ship *Marquis Cornwallis*, preceded by an Abridgment of his run in the PACIFIC OCEAN.

CAPTAIN *Hogan* ſailed in 1796, from *Port Jackſon* in New South Wales, toward *Norfolk* Iſland, and on the 24th of June came to the Iſle of TANNA, the ſouthernmoſt of the *New Hebrides*; he aſcertained the latitude of the ſouth end of that iſland at 19° 37′ South, and found its longitude, by an excellent chronometer of *Earnſhaw*, to be 169° 31′ 30″.

" To run along the range of the New Hebrides, a ſhip ſhould make the iſlands of Erronan and Tanna, ſail between them, about mid-channel, and ſteer *per compaſs*, N. N. W. till in latitude 13° 10′ South. That will carry her clear of every thing, and, if the weather be clear, in ſight of ſome of the eaſternmoſt iſles; as there is no danger to ſeaward; ſhe may run without fear day and night a N. W. courſe *by compaſs*, from the above latitude, and it will carry her one league to the weſtward.

On the 26th of June Captain *Hogan* was off the ISLE DE L'AURORE, on the north end of the *Great Cyclades* of *Bougainville*. He aſcertained the latitude and longitude of that iſland, as well as of the PIC DE LAVERDY, to the northward of it, as follows.

Latitude of the north-weſt end of *Aurora* iſland 14° 45′ South *by chart*, error 1° 15′ too far South.

Longitude ditto 167° 30′ Eaſt, *by chart*, error 1° 0′ too far Eaſt.

Latitude of *Pic de Laverdy* 14° 15′ South, *by chart*, error 0° 58′ too far South.

Longitude ditto 167° 51′ *by chart*, error 0° 39′ too far Eaſt.

" So that in conſequence of the error in the latitude of theſe iſlands, a ſhip," ſays the captain, " may endanger herſelf, by hauling too ſoon to the weſtward in thick weather."

On the 27th the ſhip made the Iſle of EGMONT, or SANTA CRUZ, the largeſt of the *Queen Charlotte's* iſlands, upon which the following remarks are given. " Having run along that iſland from Eaſt to Weſt, and ſought in vain for the two iſlands *Edgecumbe* and *Ourry*, as laid down by Captain *Carteret*, in the *Swallow*, 1767, cloſe in with the ſouth-eaſt part of this ſhore, on a ſmall ſcale, I am now very much inclined to believe that he muſt have meant two iſles ſeen by us in the morning, and to which I will give no name, although (with due ſubmiſſion to that able navigator) he has entirely miſtaken their ſize and ſituation, as well as the poſition of this Iſle of Egmont, as will appear by our own obſervations, time-keeper and reckoning from Norfolk iſland. The whole range of the Hebrides partakes in part of the ſame error, though laid down by that very able circumnavigator Monſ. *De Bougainville*.



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" The latitudes and longitudes hereafter laid down, are by croſs bearings taken for that purpoſe, having had a very good obſervation of the ſun and moon at 8 o'clock, which brought up to noon of this day, 27th, agrees with the time-piece within 25′ 30″, and with the reckoning within 44 miles.

" Latitude of the north-weſt part of the iſle firſt ſeen, ſuppoſing it *Ourry*, by *Carteret*,

| | | | | | |
|---|---|---|---|---|---|
| 11° | 37′ | South, - - - | Longitude | 167° | 11′ Eaſt. |
| 11 | 19 | The body of the ſecond iſle, ſuppoſing it *Edgecumbe*, | | 166 | 55 |
| 10 | 45 | The northern entrance of ditto at ſight, - | | 166 | 28 |
| 10 | 56 | *Howe's* iſland, - - - - | | 166 | 25 |
| 10 | 55 | Eaſt Cape *Boſcawen* on Egmont, - | | 166 | 10 |
| 10 | 38 | *Volcano* Iſland, - - - - | | 166 | 12 |

" The following latitudes and longitudes of theſe iſlands, by Captain *Carteret*, are very erroneous, *viz.*

North-weſt part of *Ourry* firſt ſeen,

| Latitude. | | | Longitude. | |
|---|---|---|---|---|
| 11° | 21′ | - - - - - | 165° | 6′ |
| 11 | 18 | Body of *Edgecumbe*, - - - | 164 | 52 |
| 11 | 18 | *Howe's* Iſle, - - - - | 164 | 5 |
| 11 | 15 | Eaſt Cape *Boſcawen*, - - - | 163 | 26 |
| 10 | 18 | Eaſt *Volcano* Iſland, - - - - | 164 | 6 |

" *Edgecumbe* is a remarkable fine iſland, of moderate height, and covered all over with trees: it has three high hills at equal diſtance from each other, the eaſternmoſt very remarkable, being like the *Falſe Friar's-hood* in Ceylon. On the ſouth-weſt ſide a very fine bay opened itſelf to us, in which I am of opinion there is fine ſhelter and good anchorage. I cannot ſay it is inhabited, nor do I know the kind of trees growing on it.

" *Egmont* lies N. E. and S. W. is of a good heigth, and covered all over with trees, amongſt which I could plainly ſee the cocoa-nut tree. The length of the iſle is about 40 miles, and I ſhould ſuppoſe, from appearance, about $\frac{2}{3}$ that in breadth. It is inhabited, and I have ſeen ſmoke in ſeveral places along ſhore."

*Howe's* iſland is an inconſiderable one, and narrow, lying cloſe in with Egmont.

On the 1ſt of July 1796, one of the ſmall iſles, which Captain *Hunter* named *Stewart's* Iſlands, was ſeen from the maſt-head, bearing E. N. E. about 7 leagues.

On the 2d, *Gower's* Iſland *(Iſle inattendue* of *Surville)* was deſcried alſo from the maſt-head bearing W. by N. 5 leagues. Soon after the neareſt part of *Arſacides Land*, which terminates in a bluff point, appeared to the weſtward S. by W. about 9 leagues; the north end of Gower's Iſle W. N. W. 4 leagues. " At 8 A. M." continues the Captain, " the body of the iſle S. W. 3 miles. Sounded, 90 fathoms, no ground: on approaching this iſle, I found the indraught of weſterly current ſo ſtrong, that I found it neceſſary to haul up 4 points to go to the northward of it, though I am convinced I may go the ſouthward with as much ſafety."

Gower's,

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" Gower's Iſland is about 4 miles in a North and South direction, and 2 miles Eaſt and Weſt: it is low and level, covered with trees, and nothing remarkable on or about it, that I could ſee, farther than one tree with a buſhy top, which appears a little higher than the reſt, in the middle of it. The latitude of the iſland is 7° 53′ South, and its longitude 161° 00′ Eaſt, by time-keeper, and obſervation of the ſun and moon taken at 9 A. M. on the preceding day.*"

Captain *Hogan*, continuing his courſe to the weſtward, kept along the coaſt of the Arſacides, which he found very erroneous in all the charts. At 8 P. M. the day before he was abreaſt of an opening on that coaſt, which inclines him to believe there is a paſſage† through that land; for he could ſee a great way to the ſouthward of the point land (moderately high) which bore at 6 P. M. S. W. by S. diſtant about 3 leagues. While becalmed off this gulf, ſtraits, or poſſibly deep bay, he found a heavy ſwell, a thing not experienced before, ſince he ſhut in the eaſtern extremity of that range of land, and which confirms him more in the opinion of that opening being a paſſage through: the fear of the effect of currents to the ſouth-weſtward, or S. W. and being ſo near one part of the ſhore, induced him to haul off till day-light, when he found his diſtance from the coaſt about 8 leagues. The whole of the land ſeen this forenoon (the 4th) is high, with many lofty hills at equal diſtances, which makes it appear from the ſea like iſlands.

On the 5th of July at noon the ſhip was abreaſt of an opening bearing S. by W. ½ S. to South, " which in my opinion," ſays Captain *Hogan*, " muſt be the northern entrance of theſe ſtraits called *Shortland's*. I have therefore ſet the point that forms the eaſtern ſide of it for Cape *Alexander*, the latitude of which, by bearings from ſhip at noon, is 6° 36′ South, longitude deduced from laſt obſervation and chronometer 157° 2′ Eaſt. To the weſtward of this paſſage the land is a great deal higher than that of the Arſacides. Farther up the land is the higheſt I ever ſaw along any coaſt, and ſome of it remarkably picturesque.

" At noon on the 6th, having opened a large deep bay to the weſtward of that very high land, I perceived a great quantity of black, or rather ſulphureous ſmoke or matter emitted from the earth; it bore *by compaſs* S. W. by W. of us; and is in latitude 5° 32′ South, and longitude 155° 2′ Eaſt: we were then about 4 leagues from the neareſt ſhore."

" On the 8th of July Captain Hogan deſcried New Ireland, and on the 9th New Britain. Several canoes and a great number of natives were ſeen on the ſandy beaches of New Britain, as well as on York Isle, on the ſouth-weſt point of which (a projecting cliff) a very ſtout man ſtood waving to them, with an inſtrument ſuch as that deſcribed by Governor *Hunter*, in uſe among their people of conſequence. Another man ſtood in the water, below him, with a green bough waving to them alſo to come near. ' Did I want water,' adds the Captain, ' I would certainly prefer *Port Hunter*, on this iſle, to any other place, for a ſupply of that article.' I ſaw this forenoon many fires on the coaſt of *New*

* According to Mr. *Henry Moor* the latitude is 7° 56′, and the longitude 160° 58′.

† This appears to be *Manning's Straits*.



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*Ireland*, which appears a ridge of mountains, as far as I have hitherto ſeen of it. But New Britain, to all appearance, correſponds with Old Great Britain; the land appears good, and the country beautifully formed, well wooded, and I believe watered, from the number of fine valleys, riſing ridges, and hillocks inland. I ſaw about 200 of the natives dancing and playing round a large fire on the beach, which I ſuppoſe they made in conſequence of the great numbers aſſembled to ſee us paſs by. I alſo ſaw two of their very large canoes under ſail going along ſhore. Since opening *St. George's Channel*, I have experienced a very ſtrong current to the weſtward, by which we have been ſet ſince yeſterday noon (the 8th) 19 miles more than the account gives

The latitude * of Cape St. George was found to be 4° 52′ South.—Its longitude 153° 11′ Eaſt.

——————— Duke of York's Iſle - - - - 0 ° 49′ South.—Ditto - - 152° 42′ Eaſt.

By *Earnſhaw's* Time-keeper.

" The 10th of July was one of the hotteſt days I ever experienced at ſea in my life; the elements are ſo cloſe and heavy, that the oppreſſion and warmth it cauſes are ſcarce bearable. The thermometer is at 85°. The weather was ſo thick at noon, that we could not ſee 2 leagues from the ſhip."

" Coming out of St. George's channel, the ſhip purſuing her courſe to the weſtward, ſaw, on the 14th of July, the *Portland Iſles*, laid down by Governor *Hunter*, in latitude 2° 38′ South, and longitude 148° 8′ Eaſt; and ſailed along the north coaſt of NEW GUINEA, whoſe high land was ſeen on the 21ſt bearing S. S. E. From the 10th to 26th the weather was unpleaſant, often very thick, and exceſſively hot and ſultry; the thermometer generally from 81° to upwards of 83° and the weight of the atmoſphere almoſt unbearable; the ſea, for the moſt part, appeared as ſmooth as oil; the currents were from 7 to 10 miles to the weſtward.

" On the 24th of July they ſaw *Three Iſlands* bearing W. S. W. the middle one appeared much like Rock Dunder in the Weſt-Indies; it bore then S. W. by W. but when brought to bear S. W. it had the appearance of Poolo Sapata in the China Seas, being juſt about its ſize: all the others may be known by this little one. At noon another large high iſland, extending South to S. by W. ¼ W. lay inſhore of them. The latitude of the weſternmoſt of the Three Iſlands 1° 38′ South, and the longitude about 139° 28′ Eaſt of Greenwich.

" From the 25 to the 26th, an uncommon current had ſet the ſhip 22 miles to the northward, and 43 miles to the weſtward of Account, making a N. W. by W. ¼ W. courſe, diſtance 48 miles. " This is," adds Captain *Hogan*, " the ſtrongeſt current I have yet experienced in the eaſtern part of the world.

" On the 29th, the man at the maſt-head ſeeing out rocks under the bottom, all hands were on deck in an inſtant, and the ſhip in ſtays: when head to wind, before I hauled main-ſail, I could clearly ſee the coral bank, on which I do not think there was more than 8 fathoms water: but after falling on the other tack, and before we had time to ſound, ſhe had run into 14 fathoms, and off the bank in a ſhort time. When in ſtays, a little iſland a-head

* " In 1792, the aſtronomer *Bertrand* on board Admiral *d'Entrecaſteaux's* ſhip, fixed the latitude of that Cape at 4° 54′ 30″ South, and its longitude at 153° 4′ Eaſt of London.

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bore S. S. E. 1¼ mile off, at which diſtance I thought myſelf ſafe enough in paſſing it: the ſea broke all round it. On the ſouth-weſt ſide is a fine ſandy beach, from which a ſpit of ſand and coral rocks runs into the ſea above water ¼ a mile: this ſpit is part of a bank of coral that ſtretches from the iſland to the N. W. forming a half-moon, the extreme diſtance of which we ſet from the main-top N. W. 11 miles. About the middle of the ſhoal the ſea broke on the reef, and on the farther end of it the water appeared like a confuſed ſtrong ripling.

"From the maſt-head the form and extent of this ſhoal could be ſeen and traced very clearly; and as we had excellent obſervations of the ſun and moon at 9 o'clock, (an hour after tacking off the ſhoal) by the mean of four ſights, and time-keeper, which we have never yet found to err one mile, we made the longitude of this iſland 135, 28′ 30″ Eaſt of Greenwich, and latitude, by a good obſervation, 0° 11′ 00″ South. The longitude of the weſt part of the ſhoal is 135° 25′ Eaſt, and latitude 0° 1′ South.

"I am of opinion that had we not tacked we might have had water enough over the bank, (though very little to be ſpared) as from aloft the man could ſee deep water, about the ſhip's length ahead of us, when the helm was put alee."

I have named this DANGER ISLAND and SHOAL; it lies exactly in the track of ſhips going to the weſtward, and is really dangerous, being a low, ſmall ſpot of ſand and rock, covered with trees: it is not laid down in any chart extant of this coaſt; the beſt track to paſs it is to keep in 10′ or 20′ north latitude."

On the 29th they ſaw the coaſt of New Guinea from the point that forms the north ſide of *Dory Harbour*; and on the 30th the Cape of Good Hope from the maſt-head bearing W. S. W.

The land along this coaſt * from one extreme to the other is remarkably high, and forms a great ſweep coaſtways; the heads appear to lie about Eaſt and Weſt, between which is a great bight or bay where, the Captain doubts not, many rivers empty themſelves, as well as that where the Dutch ſhip *Geelvink* watered, which I could ſee to the S. E. very plain.

On the CAPE OF GOOD HOPE bearing E. by S. about 6 leagues, it makes exactly like that cape of the ſame name at the extremity of Africa, a low rugged point. The iſland *Amſterdam* bears off the Cape W. S. W. about 7 leagues; the iſland *Middelburg* lies within Amſterdam; there appears to be a paſſage between them, and they bear of each other N. W. and S. E. they are ſmall, low iſles, very flat; the outermoſt (Amſterdam) lies about 8 miles off ſhore. The ſhip *Geelvink*, who ſounded this coaſt, places a reef of rocks all around them, over part of which ſhe lays down 4 and 5 fathoms water.

At noon the Cape of Good Hope bore E. by S. ¼ S. the body of Waygeeo W. by S. a very ſtrong current ſetting to the weſtward. The bearings of this cape, allowing its diſtance 10 leagues, give it in latitude 0° 15′ South, and in longitude by time-piece 133° 0′ 30″

* The moſt lofty mountains of that high chain appeared to be at leaſt 1600 yards in perpendicular height: the large trees with which they are covered add in a peculiar degree to the beauty of the landſcape. D'ENTRECASTEAUX's *Voyage in Search of* LA PEROUSE. T. 1. p. 298.

East.

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East*. "Our longitude," ſays Captain Hogan, "agrees with that laid down by M. *Robertſon*; but its real latitude is 6 miles to the ſouth-weſtward of his chart."

## *Dampier's Straits.*

"AT noon the following bearings were taken:—POINT PIGOT on Waygeoo N. by E. extremes to the weſtward, Weſt, off ſhore 6 miles; the high land of Batanta S. W. by W.; the entrance of the Pitt's Paſſage S. W. ¼ W.; extremes of New Guinea, from the land above the pitch of the Cape of Good Hope, E. by N. to Cape Spencer S. by W.; Threſhold point on ditto S. E."

"The firſt part of this day we were drove to the weſtward ſo faſt, that I feared very much we ſhould be ſet paſt Waygeoo to the northward, and much nearer inſhore than I wiſhed; for the current ſent the ſhip about 2¼ or 3 miles *per* hour, in a weſterly direction: however, the ſqualls we had during the night, which was very dark and unpleaſant, of which I took every advantage, gave us ſouthing enough to ſet me at eaſe by 9 A. M.

"At 8 A. M. *Hummock* iſle on with King William's S. W. by W. ¼ W. diſtant 2 miles; the mouth of the ſtrait into Waygeoo opens to the north-weſtward of us 3 miles; no ground at 96 fathoms. This ſtrait is large within its heads, and full of iſlands: to the weſtward of its entrance, on the ſhore of Waygeoo, are two conſiderable villages, whoſe houſes, neatly thatched, are built on piles, which appear to raiſe them upwards of 10 feet above the ground: from one of theſe villages I ſaw a large proa full of men, and a canoe with only 5 men in it, coming off to us; but the wind at that time coming to the S. E. (fair) I could not lie by for them, particularly as I found a rapid tide running to the weſtward, within King William's Iſle, which drew us in faſt toward the dangerous ſhoals that I ſaw between it and Waygeoo; ſome of theſe were banks of ſand above water. I muſt obſerve that a dangerous bank of coral, which lies off the two villages, and on which there appears little water, muſt ever prevent ſhips from going near them, as without this danger you have no ſoundings.

"Paſſed a ſmall iſle like a *porcupine*, (which in laſt bearings was in one with Hummock iſle) at the diſtance of ¼ a mile, no ground at 60 fathoms, abreaſt of it.

"The firſt of Auguſt, at 10, the firſt officer who was at the maſt-head ſaw a reef extending E. S. E. from *Pigeon* iſle towards *Foul* iſland, on which he thought there was not water enough. Bore away immediately, and ran through a narrow gut between the ſand that ſtretches from Pigeon iſle in the form of a horſe ſhoe, and a coral ſhoal on the ſtarboard hand, I found to the E. S. E. a tide againſt us of not leſs than 3 knots *per* hour; it was nearly low water, and from what I could ſee of the ſhore, the tide riſes here 12 or 14 feet.

"When I got between *Auguſta* and *Pigeon* Iſles the tide ran like a ſluice, and though

* The aſtronomer on board the *Recherche*, Admiral *d'Entrecaſteaux's* ſhip, places the Cape of Good Hope in 0° 20' latitude South, and in 132° 54' Eaſt of Greenwich. "We were aſtoniſhed," ſays he, "that FORREST, in other reſpects a very accurate navigator, ſhould have been ſo greatly miſtaken with reſpect to its true latitude: that which he has given, differed from ours, by being more than a third of a degree to the northward. T. 1. p. 299.

there

there was a freſh breeze from the eaſtward, and ſteering ſails alow and aloft on both ſides, we could ſcarce make any head way againſt it. The ſhores of the two iſles are not more than $\frac{1}{4}$ a nautic mile aſunder at low water. We hauled to the N. W. till we had Auguſta bearing Eaſt, to avoid a dangerous ſhoal in the fair way with the paſſage between them. Then we ſteered to the weſtward between that and a coral bank on the ſtarboard hand till noon, when we were but juſt clear to the weſtward of all the ſhoals, the iſle of Auguſta then bearing E. by N. 2 miles. Through this laſt paſſage, which is narrower than the firſt, we brought with us regular ſoundings, 17, 16, 15, 13, 12, 11, $\frac{1}{2}$10, 10, 12 13, 16, 17, 20, and no ground at 25 fathoms.

"It is to be obſerved that we could get no ground at 20 fathoms through the firſt channel, nor between the iſles; and I am of opinion that there was not leſs than 3 fathoms water over moſt of theſe banks of coral rock which we have paſſed, conſequently water enough for us, drawing only 14 feet. Between Auguſta and King William's iſle, I could ſee many ſhoals from the maſt-head, and as many paſſages for ſhips, which you may ſafely ſteer through by having a careful man at the maſt-head; but the weather ſhould be very clear to attempt it, and a leading wind. I would however adviſe this track to be avoided as much as poſſible, as a ſhip may always purſue the track round by Foul iſland, where ſhe will have a clear channel, and regular ſoundings.

The paſſage between *Auguſta* and *Pigeon's* Iſles, lies in 0° 37′ 0″ South latitude, and in 131° 8′ Eaſt longitude according to M. *Henry Moor*, who has added the following remarks.

"We had," ſays this gentleman, "a 4 knot breeze, and could but juſt make head againſt the eaſtern tide; it appeared near low water; it had ebbed dry by the ſhore 36 yards—ſuppoſe to riſe and fall 12 feet perpendicular. We did not obſerve leſs than 4 fathoms on any of the coral reefs, except the reef to the eaſtward of Pigeon's iſland, and within $\frac{1}{4}$ of a mile of the iſland there might not be more than $2\frac{1}{2}$ fathoms.

"The firſt intention was to have gone to the ſouthward of Pigeon iſland, but falling on the coral reef in 7 fathoms, we bore up, and although M. *Robertſon's* chart, and indeed all the charts, lay the two iſlands connected by a reef, this paſſage was undertaken by Captain *Hogan*, he having only a ſlight intimation of two ſhips having paſſed through there before."

## VAN DIEMAN'S LAND, &c.

WE have obſerved, at the beginning of this book, that ſhips going the outward paſſage, and bound to New South Wales, ſteer to the eaſtward in the parallels of latitude from 37° to 40°, where they meet with ſtrong gales from W. S. W. to S. S. W. and N. W. that courſe muſt be continued until they come near the coaſt of New Holland, when they haul more ſoutherly, and gather into the latitude of *Cape Diemen*, the ſouthernmoſt Cape of New Holland; having rounded that cape, they enter the South Pacific

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cific Ocean, and ſteer northward for *Port Jackſon* or for *Norfolk Iſland*, from whence they take their departure for the North Pacific Ocean and China.

VAN DIEMEN'S LAND was diſcovered by the Dutch navigator *Abel Taſman*, in the month of November 1642; and ſince that epoch till the year 1772, when *Marion** went there, it had not been ſeen by any European. In 1773, that land was viſited again by Captain *Furneaux*, in 1777 by *Captain Cook*, and in 1792 and 1793, by Admiral *D'Entrecaſteaux*: the exploration of ſeveral iſlands, bays, and harbours, has been added to the diſcovery of *Taſman*, in conſequence of thoſe voyages; but the moſt intereſting of the diſcoveries, and which will become very advantageous to the navigation of thoſe parts, is that made by Lieutenant *Flinders*† of his Majeſty's ſhip *Reliance*.

That gentleman, ſent by Governor *Hunter* in the colonial ſloop *Norfolk*, has diſcovered, in 1798-9, that Van Diemen's Land was an iſland of above 50 leagues in length from North to South, and upwards of 30 in its greateſt breadth from Eaſt to Weſt: he has circumnavigated the whole coaſt, and aſcertained its principal points. It is ſeparated from the main land of New South Wales by a ſea 40 leagues in extent, communicating with the South Pacific Ocean, by an opening about 20 leagues broad, which Lieutenant *Flinders* has named BASS'S STRAITS; theſe lie between New South Wales, and *Furneaux Iſlands*, which iſlands extend about 20 leagues in a direction North and South nearly, and are ſeparated from Van Diemen's Land by BANKS'S STRAITS, only 4 leagues in width.

On the north-weſt of Van Diemen's land, the explorator has aſcertained the ſituation of one of his diſcoveries, which he names *Port Dalrymple*. Its entrance is laid down by ſeven ſets of lunars on each ſide of the moon, by two ſextants, in 41° 3′ latitude South, and 147° 5′ longitude Eaſt of Greenwich. Lieutenant *Flinders* places the pitch of Cape Diemen in 146° 57′ Eaſt of the ſame place, which is only 10′ more to the weſtward than the longitude deduced from that obſerved by *D' Entrecaſteaux*; the ſtation of that admiral's obſervatory was on the ſtarboard hand towards the entrance of the harbour, called after his name, and which is ſituated at the head of *Storm bay*, diſcovered likewiſe by him to be the ſouth entrance of a ſtrait. He found then the latitude to be 43° 32′ 24″ South, and the longitude 147° 11′ from Greenwich.

This port is a baſin of a nearly oval form, which extends about $3\frac{1}{2}$ miles towards the N. N. E. and the greateſt breadth of which is about a mile. The large foreſts by which it is ſurrounded on all ſides, and the mountains at no great diſtance, which ſhelter more than half the circumference of this harbour, add ſtill to the ſecurity of the anchorage. The moſt tempeſtuous weather does not prevent the boats from croſſing it without fear. A muddy bottom, of about $3\frac{1}{2}$ fathoms, exempts a veſſel from damage in caſe ſhe happens to get aground. Upwards of a hundred ſhips of the line might here anchor in ſafety, and would find wood and water as they might want.

" The paſſage from the Cape to that harbour laſted 64 days, and moſt of the navigators who have preceded us," ſays the writer, " have not taken more than from 50 to 55 days

* A French captain who was devoured afterwards by the New Zealanders.

† Now captain of the *Inveſtigator*, a ſhip on a voyage of diſcoveries.

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to make the ſame run. It is however to be remarked, that they got to the ſouthward as quickly as poſſible, in order to catch the weſterly winds. The route is a little longer; but at ſea it is not always in following the ſhorteſt track that a ſhip makes the quickeſt paſſage. A navigator ſhould make himſelf well acquainted with the moſt uſual direction of the winds, in order to go and ſeek thoſe which are favourable.

Concernidg the D'ENTRECASTEAUX'S STRAITS, the admiral expreſſes himſelf in the following terms. " We had juſt compleated one of the geographical diſcoveries the moſt important to navigation. It was of the greateſt utility to aſcertain exactly at this extremity of New Holland, where impetuous winds prevail, the places of ſhelter which it can afford to ſhips aſſailed by ſtorms. A roadſtead of 9 leagues in extent, at the point of this vaſt iſland might hold out very great advantages to a commercial nation. A veſſel may come to an anchor in any part of it with a certainty of finding a good bottom, with a depth of water of from 6½ to 7 fathoms. Not a ſhoal is there to be met with. At an equal diſtance from its two extremities, where the rather coarſe ſand predominates, the ground is not ſo good; there is alſo leſs water, for by the lead we had there only 6 fathoms. It ſhould ſeem that the tide, entering by the two extremities at once, had drifted the ſands into the place where the contrary currents meet. There is no danger to be apprehended in approaching the land to within the diſtance of 250 yards. The windings of this channel preſent a very diverſified proſpect, and ſituations truly pictureſque. Boiſterous winds were very prevalent in the offing; while in the Strait we enjoyed the calmeſt weather. We did not expect to find ſuch perfect ſafety ſo near Storm Bay."

" The variation of the magnetic needle, at the time of our paſſing under the meridian of the Iſle of France (Mauritius) and at the diſtance of 280 leagues to the ſouthward had been 12° more than that which is obſerved on approaching that iſland: this is a great variation in proportion to the difference of latitude.

" The greateſt weſterly variation obſerved was on the 3d of March, 30° 30′; our latitude being then 34° 30′ South, and our longitude 37° 45′ Eaſt: from this point it continued to diminiſh, and in the latitude of 43° South, and longitude of 129° Eaſt, we found no variation; it then became eaſterly, and increaſed in proportion as we advanced to the eaſtward.

" The weſterly variation of the magnetic needle obſerved at the point where it was the greateſt, had been owing more to the change of longitude than to that of latitude; while afterwards, till we were under the meridian of Mauritius, it ſeemed to depend much more on the degrees of latitude; for from the point where it had been the greateſt as far as to the meridian of that iſland. After having made 17° of longitude, and 2° 30′ of latitude, the difference had been only 4° while in a latitude of 17° more ſoutherly, the variation had been found 12° greater than that of Mauritius.

" The phoſphoreſcence of the ſea-water had in this run diminiſhed in proportion to our diſtance from the land; ſo that long before we ſaw the iſland of St. Paul, I could ſcarcely remark any phoſphoric bodies when the water was rough.

" The thermometer in this paſſage did not fall lower than 8° above 0, and did not riſe higher than 20°.



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" The mercury in the barometer had riſen to 28 inches 7 lines, and had not fallen lower than 27 inches 7 lines.

" When in this run we had reached the variable winds, the currents had ſet us from 10' to 20' a day to the northward; but being arrived off the ſouth-weſt coaſt of New Holland, we had been carried to the eaſtward. Theſe different directions are owing to the ſituation of the lands.

" Our tables for the correction of the irregular going of the time-keepers, occaſioned by the difference of the temperature, extended only to the 15th degree of *Reaumur's* thermometer; and the arc of the balance-wheel of the time-keeper was determined only from the 105th degree to the 115th. It had been conſtantly upwards of 115th°, and the temperature of the atmoſphere had been very frequently below the 15th of the thermometer. It was neceſſary to have at leaſt this degree of heat in the place were our time-keepers were depoſited. A common lamp fully anſwered this purpoſe; but a lamp with an air-tube was preferred, in order that there might be no ſmoke."

## THE GREAT EASTERN PASSAGE TO CHINA.

### *Bond's Paſſage.*

THIS Paſſage, by an Eaſt India ſhip, was firſt attempted in 1792 and 1793, by Captain *Henry Bond** of the *Royal Admiral.*

From *Port Jackſon* in New South Wales he paſſed about 40 leagues eaſtward of *Lord Howe's Iſland*; then ſteering towards the North, he doubled the reef off the north-weſt end of *New Caledonia*, came to the eaſternmoſt point of *Santa Cruz* or *Egmont* Iſland, and having ſailed between that point and *Swallow* Iſland, croſſed the Line in 166° 10' of eaſt longitude. Thence continuing his courſe northward, he fetched the 113th degree of north latitude; then ſteered Eaſt for the Ladrone Iſlands, and made *Tinian*, from whence he bore away for China.

In this long run Captain *Bond* has diſcovered ſeveral new iſlands, and made the following remarks on the reef off the north-weſt end of New Caledonia.

" I was on the look-out for the reef," ſays this bold navigator, " as Captain *Cook's* account of ſeeing no end to the breakers alarmed me, and I hauled a degree to the weſtward to give it a good birth. At day-light we diſcovered to the eaſtward two ſmall iſlands

* In 1788 the *Scarborough*, Captain *John Marſhal*, ſailed from Port Jackſon to China, through the Pacific Ocean, to the eaſtward of all the iſlands. He croſſed the Equator at about 173° of eaſt longitude, and from thence ſailing to the north-weſtward, ranged along a multitude of iſles and iſlots, diſpoſed in various groups and chains, as far as the 11th degree of latitude North, but whoſe number and ſituation are very imperfectly aſcertained. In the ſame year Lieutenant *John Shortland* in the *Alexander* went from Port Jackſon acroſs the Pacific Ocean to Batavia. He diſcovered the ſouth coaſts of the *Arſacides Land*, and named it *New* Georgia; went through *Bougainville's Straits*, thence having croſſed the Line in 154° Eaſt, he came to the *Pelew Iſlands*, and from thence to Cape St. Auguſtine, in Mindanao, from whence he ſteered for Batavia.

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about 4 leagues to windward, and preſently after detached lumps of breakers, with here and there ſtraggling rocks above water. I ſtretched away to the N. W. bore up and ran along the reef about 5 miles diſtant.

" November 28th, 1792, at 7 A. M. we could plainly ſee a long, low woody iſland 4 leagues to the eaſtward of the breakers. At 8 we were abreaſt the north-weſt extreme over which the ſea broke furiouſly, the point being open to the eaſterly ſwell: it appeared from the point to be of conſiderable breadth made up of iſlots, rocks, &c. above and under water: there may poſſibly be clear paſſages, but neceſſity would ſcarcely warrant ſo raſh an undertaking as to attempt going through them.

" It is the moſt dangerous ſhoal I ever beheld, and the water is ſo very ſmooth, owing no doubt to its eaſtern extent, that a ſhip might be on the reef preſently, and almoſt with the beſt look-out. I have aſcertained the longitude of its north-weſt extreme by a very good *Arnold's* time-keeper, whoſe rate agrees with our lunar obſervations as nearly as poſſible, and found it to lie in latitude 18° 4′ South, and 162° 43′ Eaſt of Greenwich. I have no doubt it extends to the north-weſt point of New Caledonia. From the maſt-head, the extremes of the ſhoal from S. E. by E. to N. ½ E. the north-weſt end formed a point: the breakers appeared from thence to run conſiderably to the eaſtward; the ſouthernmoſt iſland E. S. E. the northernmoſt N. E. by N. its direction from N. N. E. ½ E. to N. E.

" The variation was 9° 53′ Eaſt."

In this very year, 1792, remarkable by Captain *Bond's* run acroſs the North and South Pacific Oceans to China, *D' Entrecaſteaux* had explored the ſouth-weſt coaſt of New Caledonia, as well as the extenſive reef at its north-weſt end.

" It was important to navigation,"* ſays the admiral, " to explore that coaſt: the rocks by which it is (New Caledonia) ſkirted, are generally from 3 to 4 miles diſtant from the ſhore; and towards its extremities, where it is the narroweſt, there are ſome at a greater diſtance. This coaſt, which is extremely dangerous at all times, is ſtill much more ſo with the S. E. winds.

" Its northern extremity was found to be in the latitude of 19° 58′, South and longitude 163° 35′.

" At 7 in the morning (July 30th) we ſaw from N. N. E. to E. N. E. ſeveral and mountainous iſlands, and ſome detached rocks, which render this extremity of New Caledonia ſtill more dangerous than the ſouth ſide of it. Some of theſe iſlots are ſome miles in extent. A great number of rocks, of a black colour, raiſe their points above the water: waſhed by a ſea ſcarcely ruffled, theſe rocks ſeem to be in motion, and at firſt ſight they might be taken for canoes riding on the waves. It was ſoon diſcovered that theſe iſlots are numerous, for from the maſt-head they were diſcerned as far as the eye could reach. They are ſurrounded by reefs, in the midſt of which the ſea aſſumes the tint of the reddiſh ſand that

* Vol. 1ſt, p. 222, and ſeq.



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covers the bottom. We reconnoitred them closely, and about 11 o'clock we were about 2 miles to the southward of one of these little islands, when we perceived breakers, which stretched off from its western point, and extended out of sight to W. N. W.

" Having observed at noon in latitude 20° 6′ 4″ South, and our longitude being 163° 35′ 36″ East (of London) we set a small island bearing E. 20° N. 2 miles and upwards distant.

" Another Island distant about 3 leagues, bore N. 8° W. these two islands are connected to each other by reefs.

" Other islands were seen to the N. N. E. $\frac{1}{2}$ E.

" On the 30th we discovered to the eastward a few islots which seem to terminate this archipelago. Their height gradually diminished in proportion to their distance from New Caledonia: they seem to be a continuation of the mountains of that large island, the bases of which, covered by the sea, rise here and there to form so many islots. The gradual diminution of the height of these mountains must induce a presumption that there are hereabouts, even to great distance, shoals which increase the danger of navigating these seas. It will be seen that this conjecture was not void of foundation.

" Steering to the N. W. we ranged close along the reefs, which prohibit the access of these islots.

" Our latitude at noon was 19° 29′ 10″ South, our longitude 163° 1′ 12′ East; the islot, which appeared to be the most northerly, bearing East, at the distance of about 3 leagues.

" We saw the chain of reefs extending to the N. W. as far as the eye could reach, and occasionally forming sinuosities, taking its course toward the West. With the wind at E. S. E. we could without difficulty follow all the windings of these shoals. Since the middle of the day we had coasted them for the distance of above 7 leagues, when we thought we perceived their extremity. We were congratulating ourselves on having already terminated this dangerous and fatiguing navigation, in order to enter into an open sea, when the man at the mast-head called out that there were shoals and a chain of reefs stretching to N. N. W.; it being too late to stand towards them, we kept to windward during the whole night.

" We imagined that we had at length terminated the survey of this frightful chain of reefs, which bar the sea for a space of upwards of 100 leagues from S. E. to N. W. and we were already 4 leagues to the northward of them, when at noon on the 1st of July, our observation placed us in latitude 18° 50′ South, our longitude being 162° 57′ East (of London.)

" We then steered N. N. E. in order to ascertain whether these reefs did not extend more to the N. E.

" About 2 o'clock in the afternoon one of the ship's company, named *Moulin*, discovered to the northward at the distance of 3 or 4 leagues a small low island, covered with very bushy trees, and guarded by reefs which trended to the W. N. W. this island is not more than 3 miles in circumference; it is situated in latitude 18° 31′ 10″ South, and longitude

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tude 162° 57′ 14″ East. This island was called *l' Isle de Moulin, Moulin's* island, "Moulin's," from the name of him who had first discovered it.

" At 4 o'clock we got sight of two other small islands lying to the N. W. by N. at the distance of 7 or 8 miles. It was impossible for us to pass beyond these islands before night; for which reason we directed our course to the S. S. E. and soon after brought to, till the next morning.

" The admiral had intended to go and anchor under the lee of Moulin's Island; but we had been carried upwards of 6 miles to leeward; and it would have been very difficult to recover this ground against currents and contrary winds. We stood to the N. N. E. and it was not long before we saw, to the northward, some breakers, not very far from the two islots which we had discovered the day before: we steered along them at the distance of $1\frac{1}{4}$ mile in their direction toward the N. N. W.

" By our observation at noon we were in latitude 18° 7′ 46″ South, our longitude being 162° 57′ East (of London), and at this time the nearest reefs lay about $1\frac{1}{4}$ mile to the eastward of us, we continued ranging along them, steering N. W. by N.

" About a quarter past one o'clock we discovered at about 3 leagues to the eastward a low and very woody island, which appeared to be at least 3 leagues in circumference; it was surrounded by rocks almost even with the water's edge. Being thwarted by the winds, we stood close-hauled: some breakers extended about 3 leagues to the N. E. and from the middle of these reefs were observed to rise points of black rocks, like those we had before seen.

" The new island is in latitude 18° 3′ South, and its longitude 162° 56′ East.

" We stood on to the northward, and about 4 o'clock P. M. the last of these rocks bore East, distant 3 leagues. Here appeared to terminate the reefs, which seemed to trend to the eastward, and then to the southward; their southern extremity is in latitude 17° 54′, South, and longitude 162° 55′ East *, and it lies 10 or 11 leagues to the northward of Isle Moulin.

" It was easy for us to perceive, by the heavy sea, that we were clear of the reefs.

" When we brought to at 6 o'clock in the evening we sounded in 53 fathoms over a bottom of fine sand, being then in the latitude of 17° 51′ South, and longitude of 162° 43′ East: we remained for an hour on this bank, where the lead being hove, at different times, gave us a depth of water of from 50 to 66 fathoms.

" We had therefore at length terminated our survey of a frightful chain of reefs, which are the more dangerous to the northward, as they are out of sight of all land: although they had appeared to us interrupted to the northward of New Caledonia, it is probable that they extend and unite again too far to the eastward for us to discover them.

" These reefs, as is well known, are the works of the *Polypi*; and the danger which they present is the more to be dreaded, as they form steep rocks covered by the water, and which cannot be perceived but at a short distance: if it falls calm, and a ship is drifted to-

* The latitude differs 10′ and the longitude 17′ from the observations of Captain *Bond*.

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ward them by the currents, her deſtruction is almoſt inevitable; in vain would the crew attempt to ſave themſelves by letting go an anchor; for it would not reach the ground, even quite cloſe to theſe walls of coral, which riſe perpendicularly from the bottom of the ſea. Theſe *Polyparii*, whoſe continual growth obſtruſts more and more the boſom of the deep, may well be a terror to the navigator; and a great many ſhoals, which at this day afford a paſſage, will, ere long, form reefs extremely dangerous.

" The magnetic needle experienced little variation during the whole time that we were along this immenſe chain of rocks, ſince from their ſouthern extremity, where it was obſerved to be 11 degrees Eaſt, it had diminiſhed only 3 degrees when we had reached its northern extremity.

" The next day, the 3d, in ſtanding to the N. N. E. we ſaw no more breakers."

The intereſting deſcription of the New Caledonian Reefs, given by *D'Entrecaſteaux*, having interrupted Captain *Bond's* journal, we ſhall reſume it at the part which mentions the diſcoveries made by that officer.

Saturday, December 15th, 1792, at 2 P. M. ſaw two iſlands from N. by W. to N. N. E. ½ E. Finding we could not weather them, bore up and paſſed them to the eaſtward, about 6 miles diſtance. They are both very low, and covered with trees, amongſt which the cocoanut-tree was very conſpicuous: they appeared circular and of no great extent, ſeemingly joined by a reef. None of our eaſtern charts having them down, I take them to be a new diſcovery, and have named them accordingly BARING'S ISLES, in honour of *Mr. Baring*, the preſent chairman of the honourable court of India directors. It was rather unlucky that the ſun was not viſible the whole day, but the latitude and longitude I have laid them down in, are ſufficiently correct, either to find or avoid them, *viz.* in latitude 5° 35′ North, longitude 168° 13′ Eaſt, varation 10° Eaſt.

Sunday, December 16th, at 10 P. M. it growing very thick, and blowing hard, brought-to with her head to the weſtward. At 11 the people on the look-out ſaw a fire on the lee-bow, bearing N. W. by N. wore immediately; ſaw the land very diſtinctly in veering about 3 or 4 miles diſtant: made ſail, and ſtood off to the ſouthward. At ½ paſt 3 A. M. wore and ſtood in for the land. At day-light ſaw the land, bearing N. W. by W. finding we ſhould loſe time in attempting to weather it, bore up and ranged along the eaſtern coaſt of above twenty ſmall iſlands lying nearly S. by E. and N. by W. *by compaſs*; they appeared all connected by reefs and ledges, diſtant from each other from one mile to ſix; they are well covered with trees, and full of inhabitants, which we diſtinguiſhed in great numbers on the ſandy beach: theſe iſlands are very low and dangerous; a ſhip in thick weather might run on the reef without ſeeing land on either ſide. I was at firſt inclined to think they had been ſeen by the *Scarborough* in her paſſage to Canton; but the difference of 4 degrees of longitude, and the courſe we ſteered after leaving them, not ſeeing the other iſlands to the N. N. W. makes it impoſſible; ſo we are, no doubt, the firſt diſcoverers. I have named them the MUSKILLO GROUP; their latitude is in 7° 20′ a 7° 47′ North, and the longitude 168° 23′ Eaſt. Variation 10° 00′ Eaſt.

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*Butler's Track.*

## OBSERVATIONS BY CAPTAIN THOMAS BUTLER OF THE WALPOLE, RELATIVE TO HIS PASSAGE FROM THE CAPE OF GOOD HOPE TO CHINA, ROUND NEW HOLLAND, IN 1794.

"THE *Walpole* not leaving the Cape of Good Hope till the 21ſt of September, and remaining with convoy until the 7th October, then in the latitude of 39° 5′ South, and longitude 61° 42′ Eaſt, I reſolved upon making my way to China round New Holland, being of opinion, as the ſeaſon was far advanced, I ſhould by ſo doing get to China ſooner than by any other paſſage. The want of correct charts on board, and of accurate information reſpecting the track I intended to follow, occaſioned me to pay the utmoſt attention to all the obſervations I made. Poſſeſſed of a good chronometer made by *Arnold* (No. 64,) having great dependence on my inſtrument, and loſing no opportunity of aſcertaining our preciſe ſituation each noon by meridional double altitudes and lunar obſervations, day and night, I am in hopes that navigators, ſailing in my track, will find in it but few errors. The ſhip's place, every day at noon, I have noted in a chart of the Indian and Pacific Oceans, printed on two large ſheets.

"After parting with the convoy, we ran gradually to the ſouthward, and had freſh breezes moſt of our paſſage to New Holland; nothing particular occurred, except ſudden ſhifts of the wind, ſometimes in very hard ſqualls, in one of which the wind in an inſtant ſhifted from N. N. E. to S. W. we found theſe ſudden ſqualls very dangerous when under a preſs of ſail. The variation (the weather permitting an obſervation) will be found very uſeful in running to the eaſtward, becauſe it changes very quickly, and after you have paſſed the longitude of 130° Eaſt, you will find it eaſterly, which variation increaſes to about 6° off the ſouth-weſt Cape of New Holland. This cape we ſaw on the 31ſt of October at daylight, and ran inſhore to make the *Mew Stone*, the longitude of which, being particularly laid down by Captain *Cook*, I took that opportunity of examining my chronometer, and ſtood off ſhore again.

"On the 15th of November I made *Norfolk Iſland*, and again had an opportunity of examining my chronometer. From Norfolk Iſland we made nearly a N. 13° E. courſe, and at 8 A. M. on the 17 November, ſaw an iſland from the maſt-head, which we hauled up to weather; but on our nearer approach, ſeeing the paſſage to leeward of it clear, bore up, and paſſed to the weſtward of it within 3 or 4 miles. The iſland is in many parts, and particularly at the top, covered with bruſh-wood; it is very ſteep, apparently inacceſſible, and has the greateſt quantity of birds about it I ever ſaw: it cannot be ſeen from the maſt-head at a greater diſtance than 7 or 8 leagues, in the cleareſt weather. At noon we had a good obſervation, and were then nearly abreaſt the ſouthernmoſt part of it, which I make in latitude 22° 40′ South, and longitude 169° 15′ Eaſt. This iſland being nearly in the latitude of the *Iſle of Pines, viz.* 22° 38′ South, I at firſt ſuppoſed it might be the ſame, but having had ſeveral good lunar obſervations that morning, I found it very far to the eaſtward of the Iſle of Pines, as laid down by Captain *Cook, viz.* 167° 38′ Eaſt; and afterwards running to the

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the weſtward of it, without ſeeing New Caledonia*, or the ſmall iſlands laid down by Captain *Cook*, between it and the Iſle of Pines, it convinced me of the contrary, for we could not have paſſed to the weſtward of that iſland, without ſeeing New Caledonia, or the iſles of the north-eaſt point, more eſpecially as the day was very clear. From theſe circumſtances I concluded this iſland to be a new diſcovery, and as ſuch named it WALPOLE'S ISLAND.

" At 1 P. M. thinking it a good channel, I bore away, intending to paſs between *New Caledonia* and the *New Hebrides* and to the weſtward of *Santa Cruz*, or the iſles called *Queen Charlotte's iſles*. At ¾ paſt 4, having loſt ſight of Walpole Iſland about an hour, the people looking out ſaw breakers nearly ahead; immediately hauled cloſe to the wind, and ſaw them from the poop, breaking in ſeven different places; the centre one the higheſt, breaking as high as the main-top; I ſuppoſed they did extend near 4 of 5 miles, and place them down in latitude 22o 05′ South, longitude 169° 02′ Eaſt. Believing this alſo to be a new diſcovery, I name it DURAND'S REEF. The alarming appearance of theſe breakers determined me ſtill to keep to the eaſtward till I was clear of the New Hebrides. At 11 A. M. on the 18th of November, ſaw the iſland of *Annatom*, bearing about Eaſt 9 or 10 leagues; and at 1 P. M. on the 19th deſcried *Tanna*, which would have been ſeen before, but the weather was very hazy. At ½ paſt 4 we were within 3 leagues of it, but not being able to weather it, tacked and ſtood to the S. E. until 2 A. M. when we wore and lay up N. N. E. and in the morning were enabled to weather Tanna, and the ſmall iſland of *Inmer*. On the eaſt point of Tanna is a large volcano. I found at noon by my obſervations and chronometer, that in theſe 24 hours we had had a ſtrong ſet to the weſtward. On the 20th at 1 P. M. ſaw the iſland of *Erronan*, which we paſſed to the weſtward.

" Concerning theſe iſlands, which were diſcovered by Captain *Cook*, it will be needleſs to add any thing, but that the latitudes and longitudes of them, as laid down in the requiſite tables, exactly correſpond with my obſervations, both lunar and chronometric.

" On the 22d of November, being to the northward of the New Hebrides, *viz.* in latitude 11° 41′ South, bore away N. N. W. and from the latitude of 9° South, we had chiefly variable winds and calms till we croſſed the Line. The wind hung chiefly from the N. E. when any thing of a breeze, and after croſſing the Line in longitude 166° ¼ Eaſt, I found the wind prevailed ſtill to the north-eaſtward: as I had ſtrong weſterly ſets, I kept as much as poſſible to the eaſtward (without being cloſe to the wind) for ſeveral days.

" At day-light, on the 13th of December, in about 11° north latitude, ſuppoſing the ſhip to the northward of all the *Caroline Iſlands*, bore away N. W. at 10 A. M. the man at the maſt-head ſaw land, bearing W. N. W. to a S. W. by S. At ¼ paſt 10 deſcried from the mizen-top four very low iſlands, with a white ſandy beach, bearing from S. W. by S. to W. by N. about 4 leagues diſtant, the ſouthernmoſt iſland the longeſt; at the ſame time we ſaw the higheſt from the poop, bearing about S. W. by W. At 11 the officer at the maſt-head ſaw another

* The ſouth-eaſt part of New Caledonia, viz. *Queen Charlotte's Foreland*, lies in latitude 22° 15′ South, longitude 167° 12′ 45″ Eaſt; *Botany Iſle* in 22° 26′ ½ ſouth latitude, and 167° 16′ ½ eaſt longitude.

iſland

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iſland to the northward, bearing N. W. by N. at this time, from the poop, the extremes of the iſland were W. ¼ N. and S. W. diſtant off the neareſt about 4 leagues.

" Not finding theſe iſlands laid down in any chart, I ſuppoſe them a new diſcovery, and as ſuch name them BROWN'S RANGE, in compliment to Mr. *Brown*, chief ſupercargo at Canton. The northernmoſt I call ARTHUR'S, and the ſouthernmoſt PARRY'S. I had very good lunar obſervations while in ſight of them, and place them down as follows: *Arthur's Iſland*, latitude 11° 43′ North, and longitude 162° 42′ Eaſt; *Parry's Iſland*, latitude 11° 19′ North, and longitude 162° 52′ Eaſt. The diſcovery of theſe iſlands made me keep more to the northward than I otherwiſe intended to have done. I now gradually bore away to the weſtward, and on the 21ſt of December, the weather being clear, at 1 A. M. made the iſle of *Saypan*, one of the *Ladrone Iſlands*, and paſſed it to the northward within 5 miles. I kept a good look-out in the night for a ſmall iſland laid down in the charts, to the northward of Saypan, called *Paxaros* iſland, or *Farellones*; but we ſaw nothing of it. At day-light ſaw *Tinian* in the S. E. from the maſt-head, about 12 leagues of. On the 30th December made the ſouth part of the iſland of *Formoſa*, and paſſed between it and the Rock *Vela-rete*, the diſtance of which from Formoſa is not more than 13 or 14 miles; but I think the paſſage a very ſafe one in the day-time, as we ſaw Vela-rete very diſtinctly. After paſſing Formoſa I kept well to the northward, as we found a ſtrong current drifting to the ſouthward; and on the firſt January 5 P. M. I anchored in *Macao* Roads.

During her paſſage the *Walpole* was ſet

| | | |
|---|---|---|
| From the Cape of Good Hope to Van Diemen's Land, | 7° 12′ | to the eaſtward. |
| From Van Diemen's Land to Norfolk Iſland, - | 0 47 | to ditto. |
| From Norfolk Iſland to the Iſle of Saypan, - | 5 50 | to the weſtward. |
| From Saypan to the Iſland of Formoſa, - - | 1 25 | to ditto. |

" *N. B.* It may not be improper to add that off *Pedra Branca* we got a pilot as uſual, who brought on board ſeveral certificates, affirming he was well acquainted with the different paſſages. In the middle of the night (when ſurrounded by a number of iſlands) we found he had loſt himſelf, and were obliged in conſequence to take charge of the ſhip from him; thoſe certificates muſt have been purchaſed of ſome other pilots. This I mention to guard other commanders againſt the like impoſition."

## DISCOVERIES MADE IN THE NORTH-PACIFIC OCEAN,

By Captain THOMAS DENNETT of the *Britannia*, going to China in 1797.

THE *Britannia*, in this paſſage, ſeems to have followed a great part of the *Scarborough's* track, in 1788, and to have come, North of the Line, into that of the *Royal Admiral*: ſome of the iſlands which ſhe has explored muſt have been ſeen by Captain *Bond*, whoſe obſervations nearly agree with thoſe of Captain *Dennett*, and by Captain



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*Marſhal*, notwithſtanding the great difference in longitude. Captain *Dennett's* inſtructive account, which cannot be but a valuable addition to our book, proceeds as follows:

September 19th, at ½ paſt 5 A. M. ſaw a low iſland, from the deck, covered with cocoa-nut trees, bearing N. by E. At 7, being within 2 or 3 miles of the iſland, eight proas under ſail with 4 or 5 men in each, came near the ſhip; theſe were blowing conck ſhells; and holding up bread fruit for ſale, with plaintain leaves, making ſigns at the ſame time, as if they wiſhed to come on board and trade with us. But having a favourable breeze, and the fear of being rather late at China, made me decline their friendly offers. The iſland lies N. W. and S. E. *by compaſs*, about 2 miles long, and appears very narrow; a reef runs off each of its ends about a ¼ of a mile, on which the ſea breaks pretty high. A great number of natives ſtood on the beach, and a great many proas were ſailing about; we counted 14 from the maſt-head. The men have all a bunch of plaintain leaves dried and neatly ſhredded very fine, which make them appear like horſe-tails; theſe are interwoven as a mat; and they wear them round their waiſts, one bunch hanging down before, and the other behind; in other reſpects they are naked; they have a roll of the plaintain leaf in one of their ears, ſome of them ſo large as four inches in diameter; their hair is neatly made up in a roll behind. They appeared much ſurpriſed at ſeeing a ſhip, and I believe it is the firſt they ever ſaw. The latitude of this iſland, which I call HUNTER'S ISLAND, in honour of *John Hunter*, Eſq. is in 5° 43′ North, and longitude 169° 00′ Eaſt, from Greenwich.

September 20th, at day-light, ſaw what at firſt appeared to be a range of iſlands, but as we approached it, found that the clumps of trees were connected by long ſandy beaches; the eaſt end of the iſland has moſt trees and verdure; the weſt where they are thinly ſcattered, has likewiſe clumps of trees, and long ſandy beaches with rocks here and there between them, which makes them appear at a diſtance to be ſeparate iſlands. To the North of this iſland there were ſeen from the maſt-head ſeveral ſmall detached iſles as far as we could diſcern. This iſland lies *by compaſs* nearly N. W. by W. and S. E. by E. but turns towards the North, as you come near the north-weſt end: its latitude I make to be in 7° 20′ North, the longitude 168° 26′ 45″, as it bore of us at 8 A. M. The extent about 26 miles from N. W. to S. E. It appears to be very narrow in the broadeſt part, or ſouth-eaſt end, which not exceeds 2 miles, and the north-weſt part not a ¼ of a mile. Theſe iſlands appeared full of inhabitants, vaſt numbers being on the beach; and 14 large proas came off under ſail, with from 4 to 10 men in them, beſides a number of ſmall proas, having 2 or 3 men in each; however none came on board; one or two caught hold of the ropes, but the ſhip going about five knots through the water they did not hold faſt long: they are dreſſed in the ſame manner as the people of Hunter's Iſland. The plantain leaf in their ears appears to be a mark of ſome diſtinction among them, as I obſerved that the oldeſt men had very large ones; and theſe they took out of their ears, and held up, as a token of peace and amity: the younger men had ſmall ones in proportion. I ſaw the bread fruit in ſome of their proas, and a few dried cocoa-nuts, which was all they had: they appeared anxious to come

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come on board, and as if they had not ſeen a ſhip before. I called theſe iſlands LAMBERT'S GROUP.

At noon the iſlands bore S. E. ½ E. 8 or 9 miles, when an iſland was ſeen from the maſt-head bearing N. W. at the ſame time two very large proas ſtanding towards us; as we approached them they tacked, and ſtood to the northward from us; but when we came near them, they again tacked and ſtood on their courſe, which was towards the iſland we had juſt left: on waving to them with a white cloth, they ſpoke each other, and came towards us, on which I backed the main-top-ſail for them; when they came cloſe to the ſhip we endeavoured to converſe with them, and although there were people on board who underſtood almoſt every language ſpoken among the iſlands to the eaſtward, Malay, Sandwich Iſlands, and Otaheite, yet no one could make out a word they ſaid: they could not come along ſide for fear of breaking their proas, yet were exceedingly anxious. After waiting about an hour, we made ſail again, at which they expreſſed ſorrow, and made ſigns to us to ſhorten ſail, by hauling the ſails up to the yards, which they had ſeen us do by the main ſail; when we hove to, being apprehenſive that their own deſire to get on board, might induce them to lay their proas along ſide, which would have ſtove them to pieces; I thought proper to ſtand on, rather than gratify their wiſhes, when it would have been probably ſo much to their coſt. In each of theſe proas, which ſeemed to be trading ones, there were about 15 people: they had one woman in one, and two in the other; and appeared to be in a higher ſtate of civilization than I could have expected. Their proas, which I ſhall endeavour to deſcribe in the ſequel, ſeemed built in a ſuperior ſtyle to any thing I have ever heard of, or ever ſaw, ſail remarkably well, and carry a very large ſail.

September 20th, at 4 P. M. being abreaſt of the iſland ſeen at noon, 14 proas came near the ſhip, with a number of men in each, many of them having 10 men, and one very large had 15 men; as they came dropping along ſide the ſhip, two of the men had ſpears in their hands, held in the manner that ſpears are generally thrown, and I expected to ſee them every inſtant throw them, which however they did not, but dropt aſtern among the reſt; till I ſaw their ſpears, I had an intention of permitting ſome of them along ſide, but there being ſuch a number of them, I thought it moſt prudent to ſtand on. At 5 P. M. a very large proa came near the ſhip, all the reſt, except two ſmall ones, having gone inſhore, upon which I lay to, when they came along ſide; I firſt threw them in a piece of iron hoop, of which they ſeemed very deſirous, and the perſon who got it took great care that his companions ſhould not have it: we traded for cocoa-nuts, and I got from them a ſmall mat, worked in the form of a ſhawl handkerchief, with a border round it; a pair of their plantain breeches, if I may ſo call them; a roll of plantain leaf from the ear of a man, who, I ſuppoſed, was a chief; he came up the quarter gallery, and ſat for ſome time on the top of it, but would not come farther; the moment he got up he gave the roll to the ſecond officer, who happened to be next him. I got alſo a ſpear, a ſmall hollow piece of wood like a canoe with a handle to it, ſix feet long, with which they bale their proas out; a ſmall baſket, and a piece of wicker work, painted black like a helmet,



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which they had at each end of their large proas; a necklace made of ſhells, the ſame as I ſaw on the necks of many of them.

A ſmall proa came along ſide with three men, a woman, and two children, one of which was at the breaſt: I could not perſuade any of the men to come on board; one of them held by a rope, and ſtood on the ſide of the ſhip, but would never aſcend high enough to look in; all the pieces of iron hoop they got, I perceived they gave to the woman: ſhe at firſt coming along ſide, had hid herſelf and the young child behind a mat; but as ſoon as they began to trade a little, ſhe made her appearance, and ſeemed equally anxious with the reſt. Whilſt I was employed trading with the people in the ſmall proa, the people from the large proa, which lay under our quarter, had got upon the rudder, and were endeavouring to knock off the rudder chains; they deſiſted when they found themſelves detected, and did not attempt it a ſecond time; but nevertheleſs ſhewed a great propenſity to thieving. A man who got upon the quarter gallery, tore one of the gallery rails off which was painted yellow, and jumped overboard with it; having got a little diſtance from the ſhip, he held it up as if in triumph, and ſwam with it to his companions in his proa, exulting no doubt at the greatneſs of his prize.

Having laid to about $\frac{3}{4}$ of an hour, and finding we could not make ourſelves underſtood, nor have any thing from them, we filled the ſails and ſtood on. The man I took for a chief had a very large hole in his left ear; ſome I obſerved had this hole in their right ear, and others again in their left. After I had filled the ſails, I went to him and made him underſtand by ſigns that I was the chief on board, and ſhook hands with him, at which he laughed and ſeemed pleaſed; his proa now getting at ſome diſtance from the ſhip, he jumped overboard, and ſwam after her with as much eaſe and unconcern, as if the water was his natural element.

The men reſemble the people about Chittagong the moſt of any I can call to mind, of all the eaſtern natives that have come within my knowledge; they are of a bright copper colour, ſtrait limbed, have aquiline noſes, and are what I conceive very handſome men in general: they wear their beards long as they grow old. The women that came along ſide differed very little in colour from the men, but their features were ſmaller and more delicate. The children and young boys all appeared at a diſtance like young girls: their features were exceedingly delicate and very handſome. At this iſland we ſaw 14 large proas at an anchor, beſides counting 19 under ſail, 16 of which came near the ſhip. I ſhould imagine it is a place of great trade, by ſeeing ſo many proas about it; though the iſland is not above three and a half miles long, and like the reſt, a very narrow ſtrip. There was counted from the maſt-head at ſun ſet 26 ſmall iſlands to the N. W. and North of it. A reef runs off the north-weſt end to the N. W. ſeveral miles, and joins another iſland that had many clumps of trees on it. This iſland bore N. $\frac{1}{2}$ E. the northern extreme, when the firſt iſland bore E. S. E. I make the firſt iſland to lie in 7° 52′ North, and longitude 168° 11′ Eaſt. I gave them the name of Ross's GROUP.

The proas of theſe iſlands are of a regular conſtruction, and anſwer beſt to the deſcription of the proas of the Marian or Ladrone Iſlands, as given by Lord *Anſon*, only that they

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they have both ſides alike, and don't ſail 20 knots an hour, not one of them being capable of holding way with the *Britannia*. The largeſt proas, I ſpeak within bounds when I ſay they were above 30 feet long, and not above 2 feet wide; they are planked up above the gunwale about 18 inches in midſhips, which takes up a good third of the proa; through theſe planks there is a frame going acroſs the proa, that projects out on one ſide about 4 feet, and on the other ſide about 10 or 12 feet; to the outer end of this they have fixed a piece of wood in form of a proa, and about 20 feet long, which goes in the water, and ſerves as an outrigger. The frame conſiſts of four or five beams, made I believe of bamboo, and which project out horizontally; to the end of the frame are laſhed ſix carved pieces of wood, which are let into the float with mortices very neat and very ſtrong, and of ſufficient length to permit it to take the water: at the outer end of the frame is a rail to prevent their goods from falling overboard; on the frame they have a ſtage or deck laid, with a cabin covered with mats, long enough to contain two or more people to ſleep in conveniently, on each ſide of the proa, and in which they put their goods, that would otherwiſe be damaged by rain or wet. All the people remain on this ſtage, as well as all their goods. The maſt appeared to be ſteped in the center with a grove to traverſe in; as the maſt always inclines forward, it is ſupported by 9 ſhrouds, which are made faſt to the float, at the end of the outrigger. The ſail, which is a triangle, anſwers much in appearance to the *Lair Panjong* of the Malay proas; it has a yard to the fore-part, and a boom to the foot of it; both yards and boom being nearly of a length: they twiſt the yard up with 2 pair of haulyards that go through the maſt-head. They never tack to go about, but always keep the outrigger to windward. When they alter their courſe they dip the ſail, and take the tuck of it to the other end of the proa (both ends being exactly alike) and haul upon a wind on the other tack without putting her round at all. The ſail is neatly made of mat, and the rope of the beſt cairs; they ſteer with two paddles.

September 19th, 1797, Hunter's Iſland ſeen at ½ paſt 5 A. M. latitude 5° 43′ North, longitude 169° 00′ East.

——— 20th, *Lambert's Group* at day-light latitude 7° 20′ North, longitude 168° 26′ 45″ East. *

——— 20th noon, *Roſs's Group*, latitude 7° 52′ North, longitude 168° East.

——— 21ſt, A. M. Princeſs Iſland, latitude 8° 21′ North, longitude 167° 25′ East.

October 10th we paſſed the Formoſa Rocks.

* Theſe two groups muſt be the *Muſhillo Groups* of Captain *Bond*, which is probably the ſame as *Malgrave's Range*, although there is a difference of 3 degrees in the longitude.

REMARKS

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## REMARKS OF CAPTAIN JOHN FEARN, OF THE SNOW HUNTER, FROM NEW ZEALAND TOWARD THE CHINA SEAS.

WEDNESDAY, October 24th 1798. In the evening we began to feel a ſhort ſwell from the north-eaſtward, which increaſed all night. At day-light ſaw an iſland which at 7 A. M. bore N. 55° E. diſtant 6 leagues: it being under the riſing ſun, and in a haze, I could not clearly diſcern its complexion; but I think it is almoſt if not quite clear of wood. At 9 it bore *per compaſs*, nearly E. by N. or due Eaſt, 5 leagues off; at the ſame time many birds round us.

At 10 A. M. ſaw a ſmall light coloured rock, low, flat, and irregular, riſing on the horizon at W. by S. diſtant about 5 leagues: juſt detached from it to the ſouthward is another *High Rock* (which probably may be found to communicate with the firſt one) having in ſhape and colour the exact appearance of a ſhip ſailing. At the ſame time the iſland firſt ſeen bore Eaſt northerly diſtant 6 leagues.

At noon the iſland to the eaſtward was obſerved in a ſhower; the *Flat Rock* S. 60° W. about 4 leagues diſtant. The latitude of the iſland, per medium of 3 different obſervations, was found to be 22° 17′ South. When the Flat Rock bore S. 60° W. the *High Rock* like a ſhip was nearly on with its ſouth end.

*Note:* on my firſt ſeeing the iſland to the eaſtward, I conceived, from its latitude, that it was Mathews Rocks, although I found it a degree to the eaſtward of the longitude aſſigned to it; but notwithſtanding it appeared bare, and is high enough to be ſeen 10 leagues or more; yet being a ſeeming round lump of an iſle, probably 3 miles in circumference, it did not ſeem to deſerve the appellation of "very high Rock," given to it in the charts.

At noon I was convinced, that the rock like a ſhip bearing then S. 60° W. was *Mathew's Iſland*, more properly *Rock*, and that it lies at ſome diſtance from the Flat Rock, which may be an appendage to it. Ships 4 or 5 leagues to the weſtward of Mathews Rocks might, in my opinion, not ſee the Flat Rock of which perhaps we are the diſcoverers; and ſuch ſhips certainly could not ſee the iſland to the weſtward. As I preſume it is a diſcovery, I have named it after the veſſel HUNTER ISLAND: its latitude is in 22° 24′ South, and the longitude in 171° 50′ Eaſt of Greenwich. The latitude of Mathew's Rock is 22° 21′ South, and longitude *per* chronometer 171° 15′ Eaſt.

Thurſday, November 8th. At half an hour paſt meridian ſaw land from the deck, making like three ſmall iſlands, the body of them N. N. W. diſtant about 6 leagues.

At 2 P. M. finding I could not conveniently weather the land, which now proved to be an iſland, bore away to the weſtward; it being diſtant 3 leagues, and bearing N. 13° E. to N. 29° W. at this moment I ſaw twice the appearance of a breaker bearing N. E. by N. diſtant perhaps 4 miles or more.

At 5 the body of the iſland bore Eaſt, *per compaſs*, the breaker being diſtinct, and only 3 miles.

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At ſun-ſet the extremes of the iſland were diſtant about 5 miles. No ſuch iſland being laid down in my charts, I preſume to name it PLEASANT ISLAND.

*Note.*—The meridional obſervation of laſt noon was unfortunately loſt by the officer on watch ſuffering the ſun to paſs, without giving notice; and the latitude of Pleaſant Iſland muſt therefore reſt on the authority of two altitudes, which make it lie in 0° 20′ South, while the dead reckoning, little to be truſted in theſe ſeas, brings it in about 0° 27′ South: the truth may be ſuppoſed between the two. Its longitude by chronometer at 9 A. M. on the 7th (being $3\frac{1}{2}$ hours before we ſaw the iſland) was 167° 03′, and, deduced from that, the longitude of Pleaſant Iſland is neareſt 167° 10′ Eaſt of Greenwich.

Pleaſant Iſland, ſo named from its aſpect, is of a height to be ſeen from the deck 6 leagues: on a near view it ſhews a ſoil, rocky, and for the moſt part very cragged, appearing ſo at intervals among the trees, with which it is finely ornamented, but not thickly covered, excepting, however, its low part, cloſe behind a fine beach that ſurrounds the iſland. This ſeems a girdle of larger cocoa-nut trees, which regularly lines the beach, and amongſt them ſeveral ſmaller trees of a beautiful deep green foliage; amongſt theſe I ſaw houſes in great numbers, the capacious ſize and regularity of which beſpeaks the poſſeſſors not meanly lodged. About a dozen canoes, middle-ſized, and of a goodly ſhape, with outriggers on one ſide, came off to us, full ſeven miles; and ſome of their men took hold of a rope-end, but would not venture cloſe along-ſide. In rounding the iſland we paſſed through not leſs than thirty of theſe canoes, containing about 300 people: at the ſame time we ſaw many perſons on the beach of the iſland, from which it may be conceived how well this little ſolitary ſpot is inhabited, conſidering it is not more than 4 or 5 miles long in any direction.

The natives of Pleaſant Iſland are not ſo large as the New Zealanders, than whom they are darker coloured, and their countenance leſs noble; few of them had any beard. The hair of the head is buſhy and black, but not woolly, in which they reſemble the New-Zealanders; but they all are free from any tatooing. They are naked, excepting a girdle, ſtrung round with a ſort of graſs, about a foot in length, and forming a very ſhort covering that juſt preſerves decency. I obſerved no weapon in any of their canoes. Their behaviour was very courteous, and they ſtrongly invited us to anchor on their iſland; as an inducement to which, they frequently diſplayed a fruit of the ſize and ſhape nearly of a man's head, and of a deep bright green colour; one cocoa-nut, and only one, was held up with a like intention. They had no fiſh amongſt them, a circumſtance that greatly ſurpriſed me, as, from the appearance of their navy, I conclude they do ſubſiſt chiefly on fiſh, perhaps the only animal food they can get.

From their invitation to touch, and conſidering that the iſland lies right in the track, from New Zealand, or New Holland, to China, I think ſome ſhip may have been there before us; the neareſt known land to this is *Hopper's* Iſland, which was no leſs than 6 or 7 equatorial degrees of longitude to the eaſtward of us.

Pleaſant Iſland ſeems longeſt from N. E. to S. W. and appears clear all round, except at its north and ſouth extremities, where there are breakers extending $\frac{1}{4}$ of a mile. The

appearance

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appearance of a breaker which we ſaw bearing N. E. by N. is a ſubject for the conſideration of thoſe who may in future paſs this iſland.

Friday, November 16. At ½ paſt 3 P. M. got ſight of ſun and moon. The reſult was longitude 163° 44′ Eaſt of Greenwich, which made it 15 miles eaſtward of my chronometer. Puſhed all night paſt the *Peſcadores*, to be up with the latitude of *Brown's Range* in the morning, as from our longitude I feared we ſhould not be able to weather them.

At 9 A. M. ſaw from the maſt-head ſome very low iſlands, and at 10 A. M. *Parry's Iſland*, the ſouthernmoſt of Brown's Range, bore W. by N. ½ N. diſtant 3 leagues, finding I could not weather the Range, which extended to N. W. by N. bore away Weſt; a few minutes after which, we ſaw from the maſt-head a very ſmall iſland ahead, and ſteered W. by S. for a ſhort time.

At 11 the ſouth-weſt point of *Parry's Iſland* N. by W. or near due North, diſtant 2 miles; at the ſame time the ſmall iſland ahead, ſeen now from the deck, at W. by N. 6 or 7 miles diſtant. We now perceived that this ſmall iſland was connected with Parry's Iſle by a chain or reef under water, along the ſide of which we ran, at a mile diſtance, there being no ſign of ſoundings.

A few minutes only before noon, we paſſed the eaſt end of the ſmall iſland, which I name EAST-DANGER ISLAND, diſtant only one mile, Parry's Iſland bearing E. by N. ½ N. 6 miles, and we ran to the weſtward along the iſland at the ſame diſtance or leſs.

At noon the latitude obſerved was 11° 20′ North.

The longitude per chronometer 162° 44′ Eaſt, at 9 A. M.

The longitude by dead reckoning at noon, 167° 57′ Eaſt.

Saturday 17th.—Firſt part a fine pleaſant breeze, and remarkable ſmooth water paſſing the iſlands; the remainder freſhening to ſtrong breezes with a conſiderable ſea, fair weather at ½ paſt meridian. Saw another ſmall iſland open out to the weſtward of Eaſt-Danger Iſland. At 1 P. M. the weſt point of Eaſt-Danger Iſland bore S. 77° Eaſt, diſtant 3 miles; at the ſame time the beach on the little iſland laſt ſeen, was juſt riſing into view. Theſe two iſlands alſo are joined by a reef which we ran along, at ½ or ⅓ of a mile diſtance, on which account I called the laſt-mentioned WEST-DANGER ISLAND.

At 40′ paſt 1 P. M. Weſt-Danger Iſland bore N. by E. diſtant about 1 mile; at which time Eaſt-Danger Iſland was declining in the horizon at S. 58° Eaſt, and a reef of breakers ſeen from the weſt point of Weſt-Danger Iſland, extending in a continued line till loſt in the horizon, right ahead, N. W. by N.

At 2 P. M. the weſt point of the breakers bore North 1½ mile, the neareſt part of them at E. N. E. only ½ a mile; at ſame time Weſt-Danger Iſland, at S. 55° Eaſt, diſtant 5 miles.

At 10 minutes paſt 3 P. M. Weſt-Danger Iſland nearly ſunk at S. 50° Eaſt, diſtant 10 or 12 miles; ſame time the breakers were ſeen to extend from our maſt-head to the horizon on the weather beam about N. 50° E. perhaps much beyond what we could ſee.

At 4 P. M. nothing in ſight.

Thus

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Thus Parry's Iſland is not only the ſouthernmoſt of Brown's Range, but the eaſtern boundary of a moſt dangerous and extenſive line of kays or ſhoals, which occupy more than half a degree of longitude, without a ſingle apparent paſſage, through which a ſtranger ſhould attempt to go; the ſouth ſide of theſe I navigated at an average diſtance of leſs than 1 mile.

Brown's Range, as well as the two kays to the weſtward of them, which I have named Eaſt and Weſt Danger Iſlands, are no more than ſo many ſand-banks, that do not ſeem to riſe in any part above 12 feet above the level of the ſea, but which are covered in moſt places with ſhrubs or trees of middling height; there are no viſible inhabitants, except birds, many of which I ſaw hovering over the land; but none came round the veſſel, as ſea-fowls uſually do. Thoſe who may fall on theſe ſpots will fare poorly, as even the cocoa-nuts were not ſeen to exiſt, but in two tufts, of about a dozen trees each, which ſtand a little apart from each other, near the middle of Parry's Iſland, and by their ſhape and greater height, ſerve as a mark by which this iſland may be known.

Parry's Iſland is long from N. E. to S. W. about 6 miles; the other 3 iſles of Brown's Range, lying to the northward, ſeem leſs than it; and breakers were ſeen from the maſt-head between all of them, ſo that probably there is no paſſage.

The weather being fine and clear, I ſaw by the colour of the ſea that there was no appearance of ſoundings, or leſs of ſhoal water, on the ſouth ſide of Parry's Iſland; I therefore ranged along till within 2 miles of its ſouth-weſt point, round which I meant to haul, and weather Eaſt Danger Iſland; when I ſaw a line of pale blue water run all the way acroſs from the one iſle to the other: over this, however, I am of opinion, we could have paſſed, eſpecially neareſt to Parry's Iſle, within a mile or ($1\frac{1}{2}$ mile) of its ſouth-weſt point; but the ſpace beyond it ſeemed in my eye rather ſuſpicious; and very fortunately I reſolved to run round to leeward of Eaſt Danger Iſle, which at firſt appeared only a little tuft, it being end on to us. I went along the *blue line* (at a mile diſtant) full 6 miles, till abreaſt the eaſt end of Eaſt Danger Iſle, along which laſt we ran at the ſame diſtance of 6 or 7 miles: in doing this we opened another iſlot to the weſtward of it, and to which it is connected by another line of ſhoal water, full 7 or 8 miles long. This ſecond line breaks more or leſs the whole way from Eaſt Danger to Weſt Danger Iſland, being the iſlot laſt ſeen, without an interval through which I could attempt to take a veſſel. Theſe two bars are, ſtrictly ſpeaking, lines, as neither of them, nor any part of Eaſt Danger Iſle, appears above two hundred yards acroſs from South to North, and in many places I think not fifty yards, no ſoundings on the ſouth ſide to no ſoundings on the north ſide, judging from the colour of the ſea, which even the land was not in many places high enough to prevent our ſeeing. The north ſide, including the very *beach* and *ſurf* of the *north ſhore*, both which I plainly perceived from the quarter-deck, and might from a boat.

I ran along the ſecond chain, which unites Eaſt with the Weſt Danger Iſles, within $\frac{1}{2}$ or $\frac{1}{4}$ of a mile, and paſſed Weſt Danger Iſle at leſs than 1 mile diſtance, it being a little iſlot, not, perhaps, half a mile either way; and now again I perceived that a moſt dangerous reef of breakers ran out from it, which reef we were able to trace 4 leagues to the northward



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and weſtward, and which we loſt in the horizon, from our maſt-head, without ſeeing its termination; it was as broad as long to our view, extending firſt N. W. then more northerly.

The relative bearings (true North,) and diſtances, judging by my eye, connected by log, &c. are:

The eaſt point of Eaſt Danger Iſle, from the ſouth-weſt point of Parry's Iſle, is W. ¼ N. 6 miles. The weſt point of ditto, from its eaſt point, is N. W. by W. ½ W. 6 or 7 miles. Weſt Danger Iſle, from the weſt point of Eaſt Danger Iſle, N. W. 8 miles. The reef projecting from Weſt Danger Iſle runs from it in firſt direction N. W. 5 miles. From the laſt point, which is the ſouth-weſt projection of the ſaid dangers, this reef ſeems to run North, ſeen from the maſt-head about 9 miles, in that direction, loſing itſelf in the horizon. Thus we ranged 34 miles of uninterrupted dangers, without including the 6 miles length of Parry's Iſle, independent alſo of the northern iſles of Brown's Range; and now found it was providential I did not cut this between Parry's and Eaſt Danger Iſlands, for the wind proved ſcant, hanging at N. E. and at night muſt have overtaken us among theſe iſles, with the weſtern dangerous reef under our lee.

The day preceding that on which I made Brown's Range, I took obſervations of the ☉ and ☾, the reſult of which was 163° 44′ Eaſt longitude from Greenwich; and a few minutes before we ſaw Parry's Iſle, I had altitudes for my time-keeper; the difference of longitude, by it, ſince the lunar was taken, being applied, gives longitude deduced from lunar at the moment the iſlands were ſeen, 162° 59′ Eaſt. The body of the iſles of Brown's Range then bore (corrected) about N. W. by N. diſtant 4 leagues, which makes it lie in *longitude* 162° 52′ Eaſt of Greenwich, which is the very ſame longitude aſſigned to Parry's Iſle by Captain *Butler* of the *Walpole*. This exact coincidence may no doubt be in part the effect of chance; but it leads me to conclude the point as tolerably well aſcertained. As to the ſouth point of Parry's Iſle, I make its latitude 11° 21′ North, by good obſervation.

My time-keeper, being a box one, by *Brookbank*, has been carried on ſince the 25th of Auguſt laſt, allowing her a gain rate of 20 ſeconds and one fifth; I found her tolerably correct at New Zealand in October, and ſhe now differs only 15 miles in longitude from my lunar obſervation, by making Parry's Iſle to lie in longitude 162° 37′ Eaſt. It is on this ground, allowing her the ſame error, and making Hunter Iſland and Pleaſant Iſland, that I have aſſigned the longitude to thoſe Iſlands; but I am aware that it leaves room for error, and I do not preſume theſe iſlands to be laid down by me nearer than 10 miles from the truth; but I think the error in longitude does not exceed that. It ſhould indeed be obſerved, that from making Brown's Range there elapſed only 8 days, till we made Saypan, and that my time-keeper makes the body of that iſland lay in longitude 146° 00′ Eaſt, which ſeems to agree with its place in the moſt approved chart of 1797; but if I allow the error of 15 miles, as has been done with regard to my diſcoveries, it makes Saypan lay in longitude 145° 45′ Eaſt of Greenwich. On this head I was however of opinion that the rate of the time-keeper had been effected immediately after our paſſing Brown's Range, firſt by a continuance of a moſt marvellous ſwell, which cauſed ſuch a motion as to endanger our maſts, for days together, even with a very moderate wind; ſecondly from a change of climate, let

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*the cauſe be what it will*, the time-keeper had certainly proved irregular during the ſubſequent part of our voyage; whereas at Port Jackſon ſhe had preſerved her regular rate from the 6th of July to the 25th of Auguſt, from which laſt period, as before-mentioned, ſhe has been carried forward.

On the navigation through the Pacific Ocean, which is preferred at this time, I think it may not be improper to obſerve, that from leaving New Zealand, when I ſteered towards the New Hebrides, till I made Mathew's Rock, and Hunter Iſland, the time-keeper *ſhewed no weſterly current*, though we were daily a few miles to the northward of account; but after paſſing Hunter's Iſland, we felt a ſtrong weſterly current of more or leſs velocity, being from 20 to 45 miles a day, or perhaps at an average of 30 miles in the 24 hours: it was generally attended by our being about *one-third* as far to the ſouthward, as we were ſet to the Weſt; and in one or two days, when the time-keeper ſhewed no weſterly ſet, we found our latitude agreed with dead reckoning. This circumſtance appeared ſtronger, on our getting 4 or 5 degrees to the northward of the Equator, when we found little or no weſterly ſet, and were generally rather to the northward of account: on the whole I found the currents through the Pacific not very different from what Captain *Butler* experienced. I was ſet about 8 degrees of longitude to the weſtward, from River Thames in New Zealand, to the Baſhee Iſlands, obſerving at the ſame time, that the ſtrongeſt weſterly ſets, are uniform at the ſouth ſide of the Line; and that as I approached Luconia, the weſterly currents became very moderate, inſomuch that inſtead of finding them pour through, into the China Seas, as I conceived they naturally would, there appeared to me to be no weſterly ſet among the Baſhees, nor indeed in my oblique paſſage to the Macclesfield, down the China Seas, when the dead reckoning was correct.

It would anſwer no uſeful purpoſe to aſſign reaſons why my remarks are not ſo correct or copious, as if I had ſailed with a view to make diſcoveries, or improve navigation; but as it may have a good tendency, I muſt not omit to ſay, that I have many times made a landfall by the ſenſe of ſmelling; and that in my paſſage, ſteering a courſe parallel to *Lord Mulgrave's Range**, I more than once ſmelt land, in doing which my ſenſe of it was nicer than that of any one on board. I do not think it could be in all caſes imagination, nor do I ſuppoſe that the ſmell could have been carried ſeveral degrees, which muſt be the caſe, if it came from Lord Mulgrave's Range. It is therefore very probable that we muſt have paſſed at no great diſtance from ſome land yet undiſcovered, perhaps lying nearly on a meridian with the Muſkillo Group, or Baring's Iſles of Captain Bond.

* One of the ſmall archipelagos diſcovered by the *Scarborough*, and whoſe middle ſhe places in 6° 30′ latitude North, and 171° 35′ Eaſt of Greenwich.



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## EXTRACT OF THE JOURNAL OF THE AMERICAN SHIP ANN AND HOPE, CAPTAIN MAITLAND.

THIS ſhip ſailed from *Rhode Iſland*, the 9th of Auguſt 1799, and arrived in China the 19th of January 1800, which is conſidered as a reaſonable paſſage; as from the Cape of Good Hope, ſhe came round New Holland, through the South and North Pacific Oceans, and went as far to the eaſtward as the ſhip whoſe diſcoveries we have juſt deſcribed. She ranged along the north-weſtmoſt extremity of the *Friendly Iſles*, and found ſeveral new iſlands.

"Thurſday, December 5th," ſays the journal, "at day-light, ½ paſt 4, ſaw land, apparently an iſland; the north-weſt part, then in ſight, roſe in a very high peak, reſembling a ſugar-loaf, tapering off to the S. E. to a low point, which bore E. by N. the peak E. N. E. diſtance off the neareſt ſhore 7 leagues: it was named *Hope Iſland*.

"At 8 A. M. ſaw land to N. N. E. ſuppoſed to be another iſland but at a great diſtance. At ½ paſt 8 ſaw land N. N. W. a low level iſland, about 5 leagues diſtant. At 9 bore away N. W. This iſland is full of trees: a vaſt number of cocoa-nut trees overtopping the others, it received the name of *Cocoa-nut Iſland*. It extends S. E. by S. and N. W. by N. and off the ſouth-eaſt point ſaw dangerous breakers, ſtretching 4 or 5 miles: on the ſouth-weſt ſhore ſaw likewiſe ſeveral breakers, intermixed with ſpots of white ſandy beach. We coaſted along this iſland, on the ſouth-weſt ſide, at about 3 leagues off ſhore; it ſeemed to be 8 or 9 miles in length, and has the appearance of being good *fertile land*. We ſaw there ſeveral fires.

"At 11 loſt ſight of Hope iſland, the peak bearing S. E. ſaw high land in the north-eaſt quarter, and back of Cocoa-nut iſland: off the north-weſt end of this iſland about 2 mile lies a ſmall iſlot covered with trees.

"At meridian ſaw land, high and uneven, bearing N. W. by N. Cocoa-nut iſland at that time bore, the north-weſt end E. 17° N. ſouth-weſt end E. 29° S. (true North) diſtant about 10 miles.

Longitude of Hope Iſland calculated from lunar obſervation at 2 P. M. - - 177° 34′ Eaſt, latitude 19° 7′ South.
——— of Cocoanut-Iſland - - 177 12 ——— 18 33 ———

"Friday 6th. At 3 P. M. deſcried an iſland bearing N. N. W. and ſoon after ſaw land N. W. by N. ½ N. which we ſuppoſed to be an iſland alſo; and perhaps there may be a continual range of iſlands, from the land we firſt perceived, and what we ſee at 5, which extends N. W. by N. as much as 100 miles. At 5 the weſternmoſt land in ſight, which I call *Firſt* or *South iſland*, bore N. N. W. ½ N. diſtant 6 leagues, and making like 4 ſugar-loaves.

"At 6 P. M. Seventeen ſmall iſlands now in ſight, back, or N. E. of which is a very high mountainous land. At 8 the weſternmoſt land bore North, when there ſeems to be a termination of the main high land or large iſland.

"Pleaſant:

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" Pleaſant weather during the night; lay off and on under ſingle reefed topſails and foreſail. At 5 A. M. the weſternmoſt iſland bore N. N. E. made ſail to the North. At 8, 18 or 19 ſeparate iſlands in ſight, the ſame ſeen laſt evening; a long range of high land extending aback of them as far as E. N. E.

" At meridian the iſland which I call *Second* or *North Iſland*, bore *per* true North N. E. by E. and Firſt iſland S. E. by E. each about 6 leagues diſtant, at which time the latitude was 17° 26′ South *per* obſervation, and longitude 176° 19′ Eaſt *per* lunar.

Firſt or South iſland lies in longitude 176° 34′ Eaſt, latitude 17° 36′ South.
Second or North iſland, ——— 176 34 —— ——— 17 16 ——

" Monday, December 9th. At 6 A. M. were alarmed by ſeeing the bottom under the ſhip, apparently at no great depth, ſpeckled with very black and white ſpots: tacked immediately; ſounded and had 12 fathoms, black, white, and reddiſh coral: in half an hour went over the bank, and perceived round the edges of it conſiderable ripling. It extends about 2 miles E. N. E. and W. N. W. and its extreme breadth is about 1 mile; no breakers ſeen, and perhaps there may not be leſs than 10 fathoms on it. Its ſituation in latitude is 15° 36′ South, and in longitude 175° 14′ Eaſt. Variation 18° 44′ Eaſt.

The north-weſtern extremity of the *Friendly Iſlands*, along which the *Ann and Hope* coaſted 120 miles N. W. *per compaſs*, and made the diſcoveries abovementioned, was called by her the LAND OF LIBERTY, and ſuppoſed to be the iſles of *Hamſa*, *Vavao*, and *Fejee*, to the ſouthward of which Captain *Bligh* ſailed in 1792. The whole, except the ſmall iſlots, appeared cultivated, and ſeemed incloſed in many parts.

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## EXTRACT OF THE JOURNAL OF THE SHIP EARL CORNWALLIS,

WM. COUNSELL, COMMANDER.

## FROM CHINA TO BENGAL,

By Captain THOMAS DENNETT.

MAY 27th 1789. At half paſt noon ſaw from the main-top a ſhoal of breakers, with a high rock in the middle of it, bearing S. W. ½ S. diſtant 10 or 11 miles: it appears to conſiſt entirely of rocks, on which the ſurf broke very high. At ½ paſt 2 P. M. a ſmall rocky ſhoal was ſeen likewiſe from the main-top bearing S. W. ½ W. diſtant about 2 miles, extending about 2 cables in length, and one in breadth: this ſecond ſhoal would be ſcarce ſeen in fair weather and ſmooth water, as I conceive the ſea would not then break on it. At a ½ paſt 4, tacked for another ſhoal bearing S. E. by E. diſtant 2 miles, and at the ſame time ſaw a low ſandy iſland bearing Eaſt: the ſhoal extends 4 or 5 miles N. W. from the iſland, the ſea breaking very violently on it. At ½ paſt 6 P. M. being near the iſland, which in future I ſhall call COUNSELL'S ISLAND, then bearing E. by S. 2 miles; and a heavy ſquall coming on from the S. W. wore ſhip, and finding ourſelves in a dangerous ſituation, from ſhoals and rocks, cloſe reefed the top-ſails, hauled the courſes cloſe

close up, and stood back the way we came. When we wore from Counsell's island shoal, shoals were seen from the mast-head to extend to the S. W. as far as the eye could reach. Latitude observed at noon 10° 16′ North.

May 28th. At ½ past 10 A. M. saw Counsell's Island bearing S. W. ½ W. distant about 2 miles, and the extremities of several shoals, on all of which the sea broke very high, from S. ¾ W. to S. by E. distant from the nearest 1½ mile. On the island are several black spots, but I cannot say by what they are occasioned. As we ran along the shoals, frequently sounded, but had no ground with 75 fathoms of line, one mile from them; they appear to be sand, with no rocks about them, and extend about 1¼ mile in length, and half that distance in breadth, apparently clean passages between them. From 1 to 3 miles a number of shoals were seen from the mast-head to the westward of them, as far as could be discerned, which made it too dangerous an experiment for us to attempt any of them. At noon a shoal abreast of us bore S. by E. ½ E. distant one mile, and the extremes of the shoals seen from the deck from S. W. to E. ½ N.

At ½ past 2 P. M. the easternmost extreme of the range of shoals bore W. N. W. about 4 miles. This shoal is much larger than any of the rest, the sea breaking on it nearly 4 miles in length. Shoals also extend, as far as could be discerned from the mast-head to the S. W.

May 29th. At 4 P. M. with a *Ramsden's* sextant well adjusted, had an observation of the sun and moon, from which I place the longitude of the shoals as follows.

| | Latitude North. | Longitude East. |
|---|---|---|
| The shoal with a high rock, - - | 10° 02′ 00″ | 113° 09′ 00″ |
| The small Shoal, - - | 9 58 00 | 113 20 00 |
| Counsell's Island, - - - | 9 52 00 | 113 35 00 |
| Western extreme of Earl *Cornwallis's Shoals*, | 9 51 00 | 113 32 30 |
| Eastern extreme of ditto, - | 9 59 00 | 113 57 45 |

From the eastern extreme of Earl Cornwallis's Shoals steered to the S. E. and had the observations as mentioned above 114° 36′ 45″ East; then steered to the westward, as the wind permitted, and on,

May 30th, at ½ past noon, saw breakers from the mast-head, bearing N. W. by W. At one P. M. the body of the breakers bore N. W. distant 7 or 8 miles. Saw several rocks at the south-east end of the shoal, of which we counted six, pretty high above the water, and some distance without the breakers. At ½ past 2 P. M. falling little wind, tacked, the extremes of the shoal bearing from N. W. ½ W. to N. N. W. distant about 4 miles; as we only saw the south-east end of the shoal, cannot determine the extent of it: it appears from what I could see of it, from the mast-head, when nearest to it, to be about N. W. by W. and S. E. by E.: had no soundings 75 fathoms line. This shoal (which Captain *Counsell* was pleased to call by the name of DENNETT'S SHOAL) lies in latitude 8° 47′ North, and longitude by an observation of sun and moon 114° 10′ 45″ East, the south-east end of it.

From

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From Dennett's Shoal, with the wind chiefly S. E. ſteered to the S. W. by W. when on

June 1ſt, at ½ paſt 5 A. M. juſt at dawn of day, ſaw a low ſandy iſland from the deck, bearing S. ¼ E. diſtant 2 or 3 miles. At the ſame time ſaw a very extenſive and dangerous ſhoal from the fore-yard bearing S. W. by W. and the ſouthern extreme S. S. W. alſo a ſhoal to the S. W. of it as far as could be ſeen from the maſt-head: the iſland has many rocks round it, but not very high above the water. At ½ paſt 6 A. M. the iſland bore S. E. by S. ¼ S. and the extremes from S. E. to S. by W. diſtant from the breakers about 1 mile. The ſhoal lies nearly N. W. by W. and S. E. by E. and, as near as I could judge, 3 leagues long, and 2 miles broad: it is ſteep-to, no ſoundings 75 fathoms. Had it continued dark ½ an hour longer, we muſt have run on the ſhoal before we could have perceived our danger, there being very little ſurf upon it, and not ſufficient to have apprized us.

We gave the name of PROVIDENCE to the iſlands, and to the ſhoals that of SEBASTIANA'S SHOALS.

Providence Iſland lies in latitude 7° 59′ North, north ſide of it; longitude from lunar obſervations 112° 53′ 45″ Eaſt from Greenwich.

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## GENERAL INSTRUCTIONS

FOR THE

## RETURN FROM THE INDIES TO EUROPE.

By Monſ. D'APRES.

ALTHOUGH ſhips can eaſily at all ſeaſons double the Cape of Good Hope, coming from the weſtward into the eaſtern ſeas, they find not the ſame facility at their return. The winds from W. N. W. to S. W. that rage violently about this cape in the months of June, July, and Auguſt, and more frequently than at any other period of the year, expoſe the ſhips, which attempt to double it at that ſeaſon, to the loſs of a great deal of time in tacking, beſides the unavoidable accidents which almoſt always attend a long continuance at ſea in tempeſtuous weather. Such have been till now the reaſons which have engaged navigators in general, when they ſet ſail from the different places of the eaſtern ſeas, to calculate the length of their paſſage to the cape, ſo that they ſhould not come to it during the three months which uſe only ſeems to have excepted. Nevertheleſs, when we conſider the winds that prevail at the cape, or in its vicinity, during thoſe three months; when we compare their ſtrength and their duration, with thoſe which blow in our ſeas in winter, and during which our navigation is not interrupted; we are juſtly ſurpriſed that navigators ſhould be more timorous in the ſouthern ſeas. I know by a repeated experience, that the ſqualls are there very violent, often in whirlwinds, chiefly at their beginning; and

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and that great vigilance is required againſt them: but after this onſet, they become moderate, and when they turn to the S. W. a calm even follows, and that pretty ſuddenly. As the ſea has riſen in proportion to the firſt impetuoſity of the wind, its agitation is what you have moſt to fear: however, all theſe circumſtances are not ſufficient to hinder navigation.

The beſt method to follow in general to double the Cape of Good Hope, when the ſeaſon is far advanced, is to keep the coaſt at a diſtance not exceeding 12 or 15 leagues; nor to approach it nearer than 6 leagues, and that from the moment you make it. By theſe means you will meet with leſs impetuous winds, than if you had a greater offing: and will find alſo the ſea leſs agitated, and currents always favourable to your courſe. Many ſhips coming from the eaſtward, to paſs the Cape, during the months of June, July, and Auguſt, have ſteered in this manner without experiencing any accident: their ſucceſs confirms the advantage of this method, which is approved beſides by the ableſt navigators I have conſulted on that ſubject. You are not to fear to be driven on the coaſt by the violence of the wind, as it never blows directly towards it, and always permits you to keep from it, or to range it along, at your option.

When you take your departure from MAURITIUS, or from REUNION ISLAND (Iſle Bourbon) you ſhould at firſt direct your courſe ſo as to paſs 30 leagues wide of that ſouth-eaſt part of Madagaſcar on which Fort Dauphin is ſituated. From the latitude of 26° 30′ to 27° you muſt then make good a W. S. W. courſe as far as about the Coaſt of Africa: you will be able even to make the land there below *Point Natal* towards *the River of Infantes*, as well as to correct your reckoning, as to take the advantage of the currents which ſet rapidly to the eaſtward.

Excluſive of the benefit which ſhips always find in a direct courſe, that which I am now ſpeaking of has the advantage of keeping them, as much as poſſible, in the ordinary tract, of the general winds, and without expoſing them, if they ſhould meet with different winds in that part of the Ocean.

When you approach the Coaſt of Africa near to Point Natal, you muſt not be ſurpriſed to find from day to day conſiderable differences to the ſouthward in your reckoning. I have found them, as well as many other navigators, to vary 1° 20′ in 24 hours. It is to be preſumed that theſe differences were the effect of the currents which, running from the Mozambique Channel, and the eaſtern ſeas, take their courſe along the eaſt Coaſt of Africa.

The ſoundings we meet with on the coaſt here being very unequal, and the coaſt itſelf being full of ſhoals in many places, heaving the lead is a very uncertain method to find out your diſtance off ſhore: this ſhould induce you to ſteer with great precaution, when you ſtand in from the ſea. You frequently meet here with fogs which obſcure the land, and prevent you from ſeeing the ſhore, whilſt at the ſame time you may eaſily diſcover the top of the mountains.

After you have made the coaſt, you ſhould keep along it according to its bearings, at the diſtance of 12 or 15 leagues, to avail yourſelf of the currents which ſet to the weſtward. Many ſhips have been ſo far benefited by them, that they found themſelves to the

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the Weſt of the Cape, when by their reckoning they judged to be above 50 leagues to the eaſtward of it.

Theſe currents are not ſo ſtrong off at ſea, and we know likewiſe by experience that the winds there being more violent, the ſea runs much higher. It ſeems therefore more proper to ſail near the coaſt than far from it, provided, however, that you keep at ſuch a diſtance as not to be expoſed to the violent and ſudden guſts of wind.

If circumſtances ſhould not permit you to make the Cape of Good Hope, nor Cape Falſo, you ſhould at leaſt ſteer a courſe ſo as to get ſoundings on the weſtern part of the BANK OF LAGULLAS, to be certain whether you are to the eaſtward or weſtward of it. This precaution is in ſome meaſure neceſſary for the courſe you ought to ſteer afterwards.

The weſtern edge of this bank ſtretches out only S. by E. of the Cape of Good Hope: with reſpect to its ſouth part, as it conſiſts rather of ſeveral ſmall banks ſeparated from each other, than one continued bank, it frequently happens that you have no bottom in 36° latitude, though you are ſtill to the eaſtward of the Cape; conſequently the ſoundings in that latitude become very uncertain means of finding out whereabouts your ſhip is; and you muſt find yourſelf more to the northward before you ſhould pay any regard to them for that purpoſe.

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## REMARKS MADE IN SAILING FROM BOMBAY TO THE CAPE OF GOOD HOPE THROUGH THE INNER PASSAGE,

## OR THE CHANNEL BETWEEN MADAGASCAR AND THE COAST OF AFRICA.

By M. NICHELSON, with ſome Additions by Captain STOKES.

WE ſet ſail from Bombay, December 16th, 1763, and ſteered along the Coaſt of Malabar, in ſoundings from 10 to 40 fathoms; having moderate land and ſea-breezes, fair weather, and ſmooth water. The winds hung more to the ſouthward than ever I knew them, blowing moſtly from E. S. E. to S. W. and W. S. W. very uncommon winds on this coaſt in December.

On the 30th, we joined Admiral *Corniſh* in his Majeſty's ſhip the *Norfolk*, in company with the *America* and *Chatham*, off CALICUT, from whence we took our departure (allowing its latitude to be 11° 21′ North, and longitude 75° 30′ Eaſt of London) and ſailed through the NINE-DEGREES CHANNEL, with moderate winds in the N. E. quarter. The beſt latitude to keep in ſteering through the LAKEDIVAS, is 9° 40′ North.

On the 1ſt of January 1764, being in latitude by obſervation 9° 49′ North, and longitude, made from Calicut 3° 6′ Weſt, ſaw the iſland Seuhelipar from the maſt-head bearing N. by E. diſtant 6 or 7 leagues. The variation was obſerved A. M. 1° 5′ Weſt. From thence we ſteered to make the land to the northward of CAPE BASSAS, and met with

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nothing very remarkable, having ſteady moderate gales in the N. E. quarter, a ſmooth ſea, and pleaſant weather. Found little or no current, ſometimes a few miles to the northward; at others as much to the ſouthward, in the 24 hours, until we made land.

On the 15th, at ½ paſt 5 P. M. being then in latitude by account 6° 47′ North, and longitude made from Calicut 24° 2′ Weſt, the variation 10° 29′ Weſt, ſaw the land of Africa from N. N. W. to W. ½ S. diſtance 5 or 6 leagues: at the ſame time ſounded and had 50 fathoms, fine white ſand. We ſteered a S. S. W. ½ W. courſe all the night, which carried us rather off the land; a S. W. by S. courſe, *by compaſs*, ſeems to be the along-ſhore courſe.

The land hereabout is pretty high, with white cliffs, or ſand-hills near the ſea, which may be ſeen in clear weather 8 or 9 leagues, and ſeems to be pretty bold and clear of danger. The variation A. M. by ſeveral obſervations, was 10° 38′ Weſt: at noon the latitude by obſervation 4° 49′ North, and longitude made from Calicut 25° 20′ Weſt. This day we found a current which ſet the ſhip 19 miles to the ſouthward of the reckoning.

The 16th at 6 P. M. Cape Baſſas bore W. by S. ½ S. the northernmoſt land in ſight, North, diſtance off ſhore about 7 leagues; being then in latitude by account, 4° 15′ North, and longitude made from Calicut 25° 35′ Weſt, or 49° 53′ Eaſt of London; the variation 10° 43′ Weſt. The courſe and diſtance from the land we firſt made, in latitude 6° 47′ North, to Cape Baſſas, is S. 25° W. or S. S. W. ½ W. about 57 leagues. This day found the current had ſet the ſhip 27 miles again to the ſouthward of the reckoning.

Took my departure from Cape Baſſas in latitude 4° 10′ North, (4° 50′, *and longitude by* computation 49° 50′ Eaſt of London; and found the current along this coaſt generally ſetting to the ſouthward, ſometimes at the rate of 35 or 36 miles in the 24 hours.

On the 18th croſſed the Equinoctial, in longitude made from Cape Baſſas, 2° 41′ Weſt. The variation 13° 16′ Weſt.

On the 17th at noon ſaw the Coaſt of MOZAMBIQUE very plain from N. W. by W. to Weſt. I imagine it to be very high land, as we were at leaſt 14 or 15 leagues from it, and perceived only the tops of the hills, which appeared like iſlands. The latitude in, by obſervation, 13° 42′ South, and longitude made from Cape Baſſas 6° 50′ Weſt; Mozambique bearing, by eſtimation, S. 38° W. diſtance 38 leagues. Had moſtly moderate gales from the N. E. quarter, ſometimes E. S. E. and ſometimes N. N. W. with fair weather; the current ſtill ſetting to the ſouthward. The variation increaſed to 17° 4′ Weſt.

Finding our reckoning from Cape Baſſas to Mozambique pretty exact, took a freſh departure from Mozambique, ſuppoſing it to bear as by eſtimation at noon, allowing its latitude 15° 4′ South, and longitude by computation 41° 56′ Eaſt of London*.

The

* To the northward of Mozambique lies the reef called *Baſſaſ de Pinda*, or *Pinda Shoal*, concerning which we have obtained the following remarks, ſince our deſcription of the Mozambique channel has been printed:

"The PINDA SHOAL, whoſe breakers may be ſeen in a moderate breeze, runs from the ſhore N. E. diſtant about 5 miles, and in the latitude of 14° 10′ by the juſteſt calculation; but the currents, which are very ſtrong in each Monſoon, will make your courſe, either under or over, if great attention be not paid: the conjunction of the moon has great effect. I found

The 28th, found the current had ſet the ſhip 40 miles to the ſouthward of account in the laſt 24 hours. The winds from W. by N. to N. W. and N. N. E. with ſome ſqualls, thunder, lightning, and rain.

The 29th, freſh gales from North and N. N. E. to E. N. E. Hazy weather with ſome rain, and a large ſwell from the N. N. E. Found ourſelves 59 miles to the ſouthward of the reckoning (ſuppoſing this current ſets S. W.) the Sun near our Zenith.

The 30th, ſtrong gales and ſqualls from North to N. E. by N. with a large ſea from the N. N. E. Thick hazy weather, and ſome rain. This day found ourſelves 8 miles to the northward of account. Latitude, by obſervation, 19° 55′ South; longitude made from Mozambique, 41′ Weſt.

The 31ſt, toward evening, had a great ſwell from the S. E. which thwarted that from the N. N. E. and made a very high confuſed ſea. At midnight came on a violent hard gale of wind, with much rain. The wind from noon to midnight veered round gradually from N. by E. to N. E. by E.—Eaſt—E. S. E. and S. E. then the gale was at the height. From midnight to noon the gale rather increaſed, and the wind veered from S. E. to S. S. E. We were lying under a reefed and ballanced mizen, much diſtreſſed on account of the ſhip's being ſo leaky, that ſhe gained upon all the pumps, and bailing at all the hatchways with buckets, &c. At noon it blew very hard, with rain, and a great ſea from the S. E.—latitude in, by account, 20° 46′ South, and longitude made from Mozambique 2° 11′ Weſt. We here loſt the N. E. trade. From this time to the 3d of February had ſtrong gales from South to S. by E.—S. by W.—S. W. by S.—S. W. and W. S. W. with cloudy weather; frequently hard ſqualls, with rain, and a very great ſea from the S. E.

This day, the 3d of February, we loſt our rudder, which, together with the leaky condition of our ſhip, made us completely diſtreſſed. Latitude in, by obſervation, 19° 52′ South, and longitude made from Mozambique 1° 7′ Weſt. Found we were ſet 60 miles to the ſouthward of the reckoning, ſince the laſt obſervation.

From the 3d to the 8th, had the winds from W. S. W.—W. by S.—S. W. by W. to S. by W.—S. by E. and South, moſtly freſh gales, cloudy weather, with frequent ſqualls and rain, and a large ſwell from the ſouthward. Found the current, for theſe laſt 5 days, had ſet the ſhip to the ſouthward of the reckoning at the rate of 31 miles a day.

This day got a machine over-board, and ſteered the ſhip with it inſtead of a rudder.—Latitude in, by obſervation, 21° 45′ South, and longitude made 35′ Eaſt from Mozambique. The variation 24° 32′ Weſt. The next day found the ſhip had been ſet 46 miles to the ſouthward of account, and 15 miles more on the 10th.

On this day the *America* informed us, that they had ſeen CAPE SEBASTIAN; that at 8 A. M. it bore due Weſt 24 leagues; from which bearing I corrected my reckoning, and took a freſh departure, finding the ſhip 4° 22′ to the weſtward of the reckoning; from whence I judge the ſtrong current we have found running to the ſouthward muſt have ſet

found here, in January 1787, a current of 42 miles to the ſouthward, the moon at the full. I believe this coaſt is free from danger, keeping it only 3 leagues to the weſtward; you will be at that diſtance, and have no ground, 70 fathoms. I found land and ſea-breezes, as on the coaſt of Malabar, from Cape Delgado to Mozambique."



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to the weſtward alſo, ſo that we were for ſeveral days within 20 or 25 leagues of the continent, and conſequently paſſed the *Baſſas de India* a great way to the weſtward of them. Latitude in, by obſervation, 22° 56′ South, and longitude 1° 25′ Eaſt from Cape St. Sebaſtian. The variation 25° 4′ Weſt.

From the 10th to the 28th, had a great variety of winds and weather, but moſtly from the eaſtern board, moderate and fair. The current, of different degrees of ſtrength, has ſet chiefly to the ſouthward, from 49 to 7 miles in the 24 hours: ſometimes we have not been ſenſible of any current for 2 or 3 days together; at others we found a ſmall one to the northward, and that but ſeldom. At noon ſaw the land bearing N. ¼ W. at a great diſtance. Latitude in, by obſervation, 35° 2′ South, and longitude made from Cape St. Sebaſtian 7° 57′ Weſt. Variation 22° 54′ Weſt.

On the 29th, at 2 P. M. the extremes of the land bore from E. N. E. to N. ¼ W. and a remarkable high peak N. by E. ¼ E. diſtance 14 or 15 leagues. This land in general ſeems very mountainous, and ſome part of it exceeding high. According to our latitude it is not laid down in the charts ſo far to the ſouthward, by a great deal, as it ought to be. At noon we were in latitude, by obſervation 35° 7′ South, and longitude made, 9° 26′ Weſt from Cape St. Sebaſtian. Variation 21° 40′ Weſt. Had 70 fathoms, fine black ſand. We coaſted it in ſoundings from 68 to 50, 40 and 38 fathoms, diſtance off ſhore from 15 or 16 to 7 or 8 leagues. There are many openings to the ſea along this coaſt, which ſeem to form deep bays; ſome of them ſo deep we could not ſee the land at the fartheſt end.

March 4th, made CAPE LAGULLAS, which is a low point of land with a gradual ſlope to the ſeaward, forming itſelf in two points: one is running to the ſouthward a long way into the ſea, and is the proper Cape Lagullas; the other point, equally low, lies at ſome diſtance to the north-eaſtward of the true cape; the land between them makes a round bight ſeemingly 3 leagues wide. The coaſt, from the inner point, turns in with a quick rounding to the northward, and forms a very deep bay; the land to the north-eaſtward being ſeen only at a great diſtance.

When Cape Lagullas and the point before-mentioned are in one, bearing N. N. E. ¼ N. and the pitch of the Cape N. by E. 4 or 5 leagues, you will then have ſoundings in 50 fathoms, fine gray ſand. Then you may ſee a very high bluff point of land cloſe to the ſea, bearing N. W. ¾ N. 9 or 10 leagues; it is the weſternmoſt land in ſight, and it appears like a *Gunner's quoin*; this lies from Cape Lagullas N. W. by W. 8 or 9 leagues, and Cape Falſo W. by N. ¾ N. diſtance 24 leagues.

Although Cape Lagullas appears a low point of land, at a ſmall diſtance from the ſea, it is about the height of the North Foreland; and the land within riſes gradually to a conſiderable height. Farther inland are ſeen very high mountains, but no land near the ſea ſo high as the Gunner's quoin, either to the eaſtward or weſtward. Therefore ſhips deſcrying the land about this coaſt 10, 12, or 14 leagues off, muſt of courſe (as it has been already obſerved) ſet the Gunner's quoin land for Cape Lagullas, it being the only land near the ſea that can be ſeen at that diſtance. When the Gunner's quoin bears N. by W.

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it does not appear like a quoin, as when you are off Cape Lagullas, but ſhews itſelf in a very different form.

When Cape Lagullas bears E. ¼ N. 7 or 8 leagues, and the land of the Gunner's quoin mountain N. ½ E. 4 or 5 leagues, you will have 50 fathoms, fine ſand. The Gunner's quoin mountain (which forms an high bluff point when you are, either to the eaſtward or weſtward of it) bearing E. by N. and the extreme of the land to the weſtward (which then ſeems to be a pretty high ſteep point) bearing N. N. W. diſtance off ſhore 4 leagues, you will have 50 fathoms, coarſe brown ſand. The land then bearing N. N. W. trenches in quickly to the northward, and forms a bay between it and the land of FALSE CAPE, or *Cape Falſo*, ſo very deep that you cannot ſee the farther part of it, from the ſhip's deck.

Captain *Charles Stokes*, then paſſenger on the *Eurydice* packet, from Bengal to England, made the following important remarks on Cape Lagullas.

"At noon, the 21ſt January 1799, I obſerved," ſays the Captain, "the latitude with a ſextant, (its error accurately defined) to be 34° 43′ 45″. At this time the extremes of the land, taken by a very good azimuth compaſs, and under every advantage, were found from E. 12° N. to W. 2° N. eſtimated diſtance from the neareſt land 12 miles; ſoundings (the reſult of ſeveral caſts while the ſhip was drifting, it being calm)* 24 fathoms, gray mud, with broken ſhells; Cape LAGULLAS, (as I then concluded) or the weſtern extreme, I eſtimated to be 7 leagues diſtant, which was afterwards confirmed by our run. The reſult of ſeveral obſervations gave the variation 24° 37′ W. this gives its true bearing W. 22° 37′ S. or W. S. W. and places the ſouth extreme, Africa, in 34° 53′, or 9 miles to the ſouthward of what is laid down in almoſt every nautical book extant.

"Cape Lagullas in this poſition made like two ſmall low detached iſlands near each other, and each running out down to the ſouthward. On the ſhore are ſeveral high hummocks of ſand moſtly; and in ſhew at the diſtance of about 10 leagues, is a remarkable mountain, in three diſtinct riſings, from which mountain to the aforeſaid northern extreme, the land is much lower and broken.

"To what I have juſt ſaid of the true latitude of Cape Lagullas, I muſt add, that I found upon our run to the weſtward, that the extreme of the land, which, from its diſtance at noon from the ſhip, we could not diſtinguiſh, projects at leaſt 3 miles more to the ſouthward, and is very low, ſo that the ſouthernmoſt point of the continent of Africa, or the pitch of Cape Lagullas, may be conſidered geographically as lying in leſs than 34° 56′† South; though for the purpoſes of navigation, it would be better to place it in 35° 00′.

"When Cape Lagullas bore North, *per compaſs*, between 5 or 6 miles diſtant, we had 25 fathoms, coarſe light gray ſand and broken ſhells; and though frequent overfalls of 6

* The drift of the ſhip being to the weſtward along the coaſt, and not more than ½ a mile *per* hour from its decreaſe, without any obvious reaſon, I am induced to think it was more the drain of the regular tide than a current. A breeze coming on, prevented my aſcertaining whether this was the caſe or not, by obſerving its change.

† Major *Rennel*, in his excellent chart of the Lagullas Bank, remarks, "that the coaſt to the eaſtward is laid down 10′ or 15′ too far to the northward." The whole coaſt that has an Eaſt and Weſt direction, partakes of the ſame error.

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or 8 fathoms, we had caſts for a quarter of an hour before we attained this heaving, and ſome caſts after we left it, we never had leſs than 25 fathoms."

Let us now reſume the general inſtructions given by *M. Nicholſon*.

Standing to the weſtward in latitude 34° 41′ South, 8 or 9 leagues off ſhore, oppoſite this bay, you deepen your water from 50 to 60, 70, and 80 fathoms, ſand and ooze, when you are about 6 or 7 leagues to the eaſtward of Cape Falſo. The variation in 1764, was 19° 39′ Weſt. To the weſtward of this bay, and 5 or 6 leagues Eaſt of Cape Falſo, the land is very high and mountainous near the ſea, with ſeveral openings like the entrances of bay or harbours.

On the 6th at noon, HOTTENTOTS POINT bore N. by W. ½ W. diſtance about 5 leagues; at the ſame time had ſoundings in 68 fathoms, muddy ground. Latitude in, by obſervation, 34° 41′ South, and longitude made 13° 31′ Weſt from Cape St. Sebaſtian. By the reckoning this day at noon, the ſhip was 4 leagues to the eaſtward of Cape Falſo, or 10 leagues from the Cape of Good Hope. According to the longitude of the Cape, the true longitude of the ſhip was 19° 7′ Eaſt of London, allowing Cape St. Sebaſtian in longitude 36° 32′ Eaſt of the ſame, and deducting 19° 7′ therefrom, the longitude made from thence ſhould be 17° 25′ Weſt; whereas by the reckoning, it was only 13° 31′ Weſt, which ſhews that the current had ſet ſtrong to the weſtward along this coaſt, as it generally does.

Hottentots Point, or Cape Falſo, is the outermoſt point in the eaſt ſide of Falſe Bay; it lies about 6 leagues due Eaſt from the Cape of Good Hope, and may be ſeen 8 or 9 leagues; between them is the entrance into Falſe Bay. At the outer part of the Cape there is an hill, which, when you are to the eaſtward of it, appears much like the Sugar-loaf hill in Table-bay, and is ſeparated from the other high land; at a ſmall diſtance within this hill, there is another of the ſame form, but not ſo high. The land near the ſea, and about thoſe hills, being very low, makes them conſpicuous when you are to the eaſtward of them; and thereby Cape Falſo may be known.

Within the inner hill are very high mountains, one of which is level on the top, and at a diſtance has ſome ſmall reſemblance of the Table land at Table Bay, which has given it the name of *Falſe Cape*. This has been miſtaken for the Table land, and the other two hills, one for the *Sugar-loaf*, and the other for the *Lion's-rump*: but there is one thing, which may at all times convince people of their miſtake, the ſoundings. The outer hill at Cape Falſo bearing N. by W. ½ W. about 5 leagues, latitude in 34° 40′ South, we had ſoundings 68 fathoms, white muddy ground; at the ſame time the extremes of the land to the eaſtward bore E. by S. ½ S. whereas with the Sugar-loaf hill in Table Bay bearing ſo, and in that latude and diſtance from land, you have no ſoundings.

I worked the bearings and diſtance from the land we firſt ſaw on the 29th of February, to Cape Falſo W. 2° S. 100 leagues; whereas the charts make it W. by S. and allowing for the ſet of the current, during the 7 days we coaſted it along ſhore, 30 leagues more may be added, which will make the diſtance of the land we fell in with 130 leagues eaſtward of Cape

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Cape Falſo: allowing 21 leagues for the current (which is it the ſame proportion) it will make 91 leagues.

The country is every where exceeding high and mountainous, both inland and near the ſea; the coaſt is full of large and wide openings as abovementioned. The ſoundings are very regular every where to the eaſtward. Where we firſt made the land, you have 65 fathoms, at 14 or 15 leagues; and 46 or 47, at 8 or 9 leagues off ſhore. About Cape Lagullas you have 57 or 58 fathoms, 7 or 8 leagues from the coaſt; and about 5, 6, and 7 leagues to the eaſtward of Cape Falſo, 60 and 64 fathoms, muddy ground, are found 5 or 6 leagues off ſhore.

In the offing, Cape Lagullas bearing by eſtimation from N. E. by N. to North, about 18 or 20 leagues, in latitude 36° 3′ South, you have ſoundings on this bank from 75 to 80 fathoms, fine gray ſand; and 12 or 15 leagues to the eaſtward of that, (the variation 20° 39′ Weſt, 1764), 90 fathoms, brown muddy ſand. In this latitude the bank runs but little farther to the eaſtward; for in 8 or 10 leagues you have no ſoundings.

In the opening of Falſe Bay you have 54 and 56 fathoms, muddy ground; Hottentots Point, or Cape Falſo bearing E. N. E. and the eaſternmoſt part of the Cape of Good Hope N. W. ½ W. 3 or 4 leagues; in latitude 34° 25′ South, and variation 19° 30′ Weſt, 1764. About 3 or 4 leagues farther off ſhore you find 64 and 70 fathoms. The bank does not ſtretch far off the coaſt hereabout.

As you run to the weſtward toward the Cape of Good Hope, you will ſhoalen your water from 68 to 60, 55, and 54 fathoms, muddy ground; in which latter depth Falſe Cape bears Eaſt, diſtant about 3½ leagues; and the very pitch of the Cape of Good Hope (which is the ſouthernmoſt point of land on the weſt ſide of Falſe Bay) N. W. about 3 leagues. On the pitch of the Cape, or very near it, is a very high peaked hill, rugged and rocky, ſomething in ſhape like the Sugar-loaf hill, but not ſo high, and with no other high land near it.—Within the entrance of Falſe Bay you have ſoundings from 40 to 36 fathoms, ſandy ground, ſometimes mud. The pitch of the Cape of Good Hope, bears, *by compaſs*, from the pitch of Falſe Cape W. by N. ¾ N. ſo that, allowing the variation, they are bearing due Eaſt and Weſt of each other, in latitude 34° 25′ South, and 6 leagues diſtant.

## INSTRUCTIONS FOR SAILING FROM THE CAPE OF GOOD HOPE TO THE ISLANDS OF ST. HELENA AND ASCENSION.

AS ſoon as you are clear of the land near the Cape of Good Hope, ſteer a N. W. courſe for St. Helena; this will ſoon bring you into the S. E. trade wind; and in the fair weather ſeaſon, you generally have freſh ſteady gales from the ſouth-eaſtward all the way.

"It has been too much the practice," ſays Mr. *Nicholſon*, "in obſerving the variation of the compaſs at ſea, not to be ſo exact as could be wiſhed. The exactneſs of this obſervation

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is of much greater utility than correcting the courſe by the common method of ſailing; and if nicely taken, anſwers all the ends of longitude in navigation, particularly where the increaſe and decreaſe are quick.

"It is my opinion, that ſooner or later, there will be ſome very important diſcoveries made by the variation of the compaſs; ſo I hope more attention will be paid to the variation, for the time to come, than hitherto has been.

"In ſteering to the north-weſtward, you will rather decreaſe the variation, for, in latitude 32° 40′ South, and longitude made from the Table land 1° 24′ Weſt, we had (in 1764) 19° 35′ Weſt. In latitude 31° 30′ South, and longitude made 3° ditto, found 19° 25′ Weſt. In latitude 29° 50′ South, and longitude, weſting 5°, had 18° 42′ weſt variation, which decreaſes gradually as you run toward St. Helena.

"In the parallel of that iſland, and 3° 10′ eaſtward thereof, we had 13° 42′ weſt variation; about 2° to the eaſtward 13° or 12° 55′ Weſt; 1° 20′ to the eaſtward, 11° 50′ Weſt; and in St. Helena Road 11° 38′ Weſt."

ST. HELENA* is ſituated in the midſt of the Southern or Ethiopic Ocean, and is the moſt diſtant iſland from the continent of any in the known world; the extreme length of St. Helena is not more than 9 miles, and, as its figure is nearly circular, the utmoſt of the circumference cannot be more than 26 or 27 miles. All the Eaſt India ſhips touch here in their way home, and cautious of miſſing ſo ſmall a ſpot, they fall into its parallel of latitude, about 50 or 60 leagues eaſtward of it, lie by all night, for fear of running paſt, and when day appears ſteer due Weſt till they make land.

St. Helena lies in a moſt temperate and agreeable climate; the S. E. trade-wind blowing there the whole year renders the air always cool, pleaſant, and healthy. They are exempt from thunder and lightning, and the iſland is refreſhed by light flying ſhowers, which produce a quick vegetation, as well as a continual verdure; though ſometimes the want of rain is ſuch that all this verdure diſappears.

It affords a dreary and moſt uncomfortable proſpect from the ſea, of high craggy rocks, many of the ſummits hiding themſelves in the clouds, and many projecting over their baſes.

The only two landing places are at *Rupert's* and *James's*, or *Chapel Valleys*.† In Rupert's Valley, toward the ſea, ſtands a ſtrong fort well mounted with heavy cannon, but the Valley is not habitable, becauſe it has no water. In the entrance of James's Valley ſtands *James's Town*, the reſidence of the Governor. It lies in 15° 55′ latitude South, and 5° 45′ longitude Weſt of London: its fort defends the Valley by a very fine line of 32

* St. Helena having been ſettled by the Engliſh Eaſt India Company in the laſt century, the Dutch took it in the reign of Charles II. and it was retaken, in 1673, by captain *Munden*. This commander was knighted at his return, and the property of the iſland veſted in the crown, by conqueſt; when his Majeſty was pleaſed to grant it to the Eaſt India Company.

† There is beſides theſe two landing-places, a ſmall place called *Sandy Bay*, where boats in very ſmooth water might poſſibly land; but this is defended below by a battery of cannon, and by the heights overhead, from which a body of men called *the flying party*, would with ſmall arms, and by rolling down large pieces of rocks, infallibly deſtroy any who had the temerity to make the attempt.

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pounders, and is flanked by a high inacceſſible battery upon the rocks called *Mundens*, cloſe under which all ſhips muſt paſs that come to an anchor before the town. On each ſide of this valley is a row of very handſome faſhed houſes, which form a pretty regular ſtreet, and at the end is a pleaſant walk of near ½ mile in length, between a viſta of trees which are always green and blooming. On the left is an encloſed ſquare for the ſoldiery; and the walk terminates in an encloſure belonging to the company called *Maldivia Gardens*, in which are great numbers of plaintain trees, yams, &c.

On the right ſide the valley is entered by a high ſteep promontory called *Ladder-hill*, the height of which cannot be leſs than 800 feet; however a winding road has been contrived to aſcend it, which, though not without difficulty, is yet ſafe, having a wall on the ſide next the precipice, and the inhabitants of both ſexes commonly ride up it on horſeback.

On the left of the valley, a good carriage road called *Side path*, forms the other avenue to the anterior parts of the iſlands. This paſſage, which has been made with great labour and difficulty, goes with an eaſy aſcent traverſely to the level above, where the proſpect is ſtriking and delightful: from a ſterile, brown, barren rock you view the moſt lively verdure; beautiful lawns, with ſheep and cattle feeding in different places, and interſperſed with ſmall houſes, which have generally a large encloſure laid out into gardens. This view is terminated by a diſtant proſpect of the ſea, or by high rocks, heaped, as it were, one upon another to a ſtupendous height. The plain called *Long Wood*, containing more than 1500 acres of ground, forms another point of view; and the whole is rendered ſtill more pleaſing by a ſmall winding ſtream, which falling from the heights into the valley, makes a delightful caſcade.

The number of ſoldiers upon the iſland is ſmall, conſiſting but of 4 companies, which, with the artillery men, never amount to more than 400 men. This force is far from being ſufficient for the defence in caſe of an attack; but every man on the iſland, without exception, is trained to arms, and proper parties appointed to alarm-poſts, which they occupy with great alertneſs, whenever the cuſtomary ſignals are made for that purpoſe.

On the ſummit of one of the heights is built a convenient look-out-houſe, which has 2 cannons near it. When a ſhip is firſt deſcried the two guns are fired; and this is called a ſingle alarm. If two ſail are ſeen three guns are fired, which is a double alarm. Immediately the drums beat to arms, and every body takes poſſeſſion of the different poſts aſſigned them. A gun more is fired for each ſhip that is ſeen till the number of five, which is the ſignal for a fleet. Every one remains under arms till the governor is acquainted by the ſhip's boat who ſhe is, and then the drums beating again, diſmiſs the people to their reſpective avocations. In the whole iſland there may be about 160 families; and theſe have among them about 300 ſlaves exceedingly ſerviceable to their maſters, who live in great comfort and tranquillity.

All ſhips in approaching the iſland bring to the windward, and ſend their barge aſhore to the caſtle, with an officer to report their nation and buſineſs, and obtain the governor's permiſſion for anchoring there. Without this all the batteries would fire upon them in

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their approach, and it would be very difficult even for a number of men of war to force a paſſage.

James's Town is ſituated in the moſt leeward part of the iſland, ſo that ſhips in coming in are obliged to keep cloſe under the land, by which means their decks are entirely expoſed to the battery above. Another diſadvantage is that of eddy winds, calms, and violent guſts, which lay them almoſt on their broadſides; ſo that the natural ſtrength of St. Helena is alone almoſt ſufficient for her ſafety.

The inhabitants, remarkable for the mildneſs of their manners, are polite without grimace, honeſt without affectation, ſincere in their profeſſions of friendſhip, and extremely hoſpitable to ſtrangers.

A ſhip bound to this iſland muſt run down along the north ſide of it, within half a cable's length of Sugar-loaf point, and afterward keep the ſhore cloſe on board within the ſame diſtance: there is no danger, the ſhore being bold and ſteep-to. On the weſt part of Sugar-loaf point ſtands a ſmall fort, and a little to the ſouthward of it is Rupert's valley: the next point to the South of the valley is Munden's Point, which muſt be kept cloſe on board: and the next valley is James's valley, off which is the place of anchoring.

You may anchor in from 8 to 15 fathoms. The flag-ſtaff at the fort bearing from S. S. E. to S. E. by S. Sugar-loaf point N. E. by E. and Horſe-paſture point S. W. by W. $\frac{1}{2}$ W. diſtance off ſhore about $\frac{1}{4}$ mile: with theſe bearings you have a good and convenient birth for watering. This bank runs out to the weſtward, from the fort about $1\frac{1}{2}$ mile, and deepens gradually from 7 fathoms near the ſhore, to 30 and 35 for about $1\frac{1}{4}$ mile, when it deepens ſuddenly to 60 fathoms, and then no ſoundings. The bottom in the road is coarſe ſand and gravel. You find no ſoundings till you come abreaſt of Rupert's valley, and then you have 18 or 20 fathoms.

The great quantity, as well as the richneſs of fine paſturage diffuſed over the face of the whole iſland, make beef and mutton extremely plenty; another reaſon for which is the quickneſs of their growth, the oxen being generally killed at two years and a half or three years old, and are then equal in ſize and goodneſs to Engliſh oxen of five years. They have abundance of poultry, alſo plenty of good potatoes, yams, and other vegetables.

As ſhips meet with good refreſhments at St. Helena, their ſick ſpeedily recover from the ſcurvy. Here is plenty of good water, but wood is rather a ſcarce article. One watering place is juſt without James's fort, where there is a crane to ſtrike the caſks into the boat; the other is at Lemon Valley, where is the beſt water; and you fill the caſks in your boat with an hoſe: only it is a little farther to fetch it.

Though the limits of the general winds never extend beyond 28 or 29° ſouth latitude, yet after you have doubled the Cape, you ſometimes meet with ſouth-eaſterly winds, which blow conſtantly, and without any ſenſible intermiſſion; ſo that in this track you may even flatter yourſelf with the hopes of their continuing favourable for croſſing the Line.

If you ſhould happen to meet with different winds in that vaſt extent of ſeas, which are the proper region of general winds, ſuch winds are of a very ſhort duration, and only occaſioned by ſome accidental cauſe. "In the month of May, 1735," purſues M. *D'Après*, "at

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" at my return from the Indies in the ſhip *La Galatée*, we met with winds from N. W. to North in this track, between the 24 and 22° of latitude South, which held us from the 12th of the ſame month to the 18th."

Between the Iſland St. Helena and the iſland Aſcenſion the S. E. trade wind blows all the year long, with fine, ſteady, pleaſant gales, and moſtly fair weather. The variation decreaſes very gradually between the two iſlands: in the latitude of Aſcenſion, and $1°\frac{1}{2}$ to the eaſtward of it, Mr. *Nichelſon* in 1764 found $10°\frac{1}{2}$; about 1° to the eaſtward 9° 52′ and at Aſcenſion 9° 48′ weſt variation.

The iſland of ASCENSION, 225 or 250 leagues to the N. W. of St. Helena, is about 3 leagues from North to South, and not more than 2 from Eaſt to Weſt; it can be ſeen 10 leagues in clear weather, and is evidently formed or burnt by a volcano: it is covered with a reddiſh earth, not unlike brick-duſt, or burnt-loam; in ſome places there is a yellow earth like oker, and in others, chiefly in the valleys, a fine black earth. The iſland is compoſed of ſeveral hills 2 or 300 yards in height, except one in the ſouth-eaſt part which is about 800 yards high; this is called the *Green mountain:* its top is double, and rather peaked; but all the reſt are of a pretty regular conic form, and covered with red earth. The earth as well as a great part of the hills are ſtrewed with a prodigious quantity of rocks full of holes, calcinated ſtones very light, and pumice ſtones. The rocks lying upon each other in a very irregular way, and moſtly on the declivity of the hills, leave great chaſms between them; and as they have very little ſolidity, an obſerver runs ſome riſque who ventures without caution upon them. The proſpect of theſe hills, and in general of the whole iſland, is frightful to behold.

About the middle of the iſland, and between the hills, there are ſeveral little plains, which are divided into ſmall ſpaces ſo remarkably diſtributed that you would take them for ſo many pieces of land cleared of ſtones, and ſeparated from each other by long walls.

There are neither ſprings nor ſtreams in this iſland; at the foot of the Green hill, however, water is found in ſome hollows, but it evaporates in a few months.

The ſurface of the iſland appears totally naked and barren. " I have not ſeen there," ſays *Abbée de la Caille*, " any ſigns of trees or ſhrubs. I have found only four kinds of plants, which are thinly ſcattered here and there. The firſt is a kind of purſlane of a very good ſort. The next is a milk-thiſtle, whoſe ſtalk becomes pretty hard in drying. The third is a ſpecies of Gramen whoſe leaf is very narrow, long, and a little indented like the ſhave-graſs. The fourth, which grows only in the ſands near the ſea ſhore, is a kind of convolvolus." This ſhore is made of very hard black rocks, which do not appear to have been calcinated, or of beaches, whoſe ſand of various colours is viſibly the pulveriſation, more or leſs complete, of the ſhells.

There are a great number of wild goats, which are very lean, of rats and mice, and ſome few inſects.

Aſcenſion iſland, without water and wood, is only frequented on account of its turtles. " Of his article," ſays Captain *Leſley* (February 1775), " the iſland furniſhes the fineſt in the creation; the females from, I ſuppoſe, hundreds of leagues round, come here to lay their



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eggs, on which employment they are taken at night; ſo that they are not only fat and large, but in the higheſt perfection for eating. Their weight in general is from four to ſeven hundred pounds. We took of them in four nights upwards of one hundred; the *Prudent*, the ſhip that was with us, took more; ſo that our ſquadron of 4 ſhips of the line had as much turtle as, if they live, will ſerve us a month for the ſhip's crew. They are, of all I ever taſted, the fatteſt and fineſt; all others I ever ſaw before bear no compariſon with them.—I muſt obſerve that the rats were very troubleſome to our turtle-parties, eating their proviſions, and killing the turtle after they were turned.

"It is ſaid," continues the ſame gentleman, "no perſon ever could find water on this iſland, except juſt ſome unexhaled rain water in the crevices of rocks acceſſible only to the goats, and that it muſt be what kept thoſe animals alive. But I am of opinion that were proper inſtruments taken to dig a ſufficient depth, there muſt be water at the foot of the valleys; for ſurely all the water that falls from the clouds in rain and dews cannot be exhaled, ſome muſt be abſorbed by the earth, and ſunk to the bottom. Though I believe there is very little rain here, yet there are always clouds hanging over the highland, and the centre mountain (the Green mountain) is generally enveloped in one. The truth is no perſon ever dug farther than a common ſpade or ſhovel would go; and on finding no water 8 or 10 feet deep, gave up the point; but ſurely 20 or 30 feet deep there muſt be water. Had I had time I would have tried this, for my opinion is, where there is ſo large a piece of land, there muſt be water at ſome depth or other. I propoſe to dig a well, and wiſh the India Company ſhould think it of ſuch conſequence to their ſhips, as to try it, by ſending ſome veſſels with proper inſtruments in the St. Helena ſtore-ſhip.

"But Aſcenſion can never be inhabited by man, for want of ſoil; the whole iſland, both mountain and valley, being one entire cinder, juſt as if it was newly ſpit out of a volcano; ſo much the better, for a well is all that could be wanted, and ſettling it would be fatal to the poor turtle, which, I hope, will at leaſt have this place left."

A ſhip bound to Aſcenſion iſland muſt ſail down along the north ſide of it, keeping it cloſe on board, it being bold and ſteep-to, and continuing to keep it ſo when ſhe comes to haul up for the road. You may ſail within 2 cables' length, or leſs of it, there being no danger till you bring *Croſs-hill* on the middle of Sandy Bay. This hill ſtands by itſelf, and has a croſs upon it, from whence it took its name.

*Sandy Bay* is about $\frac{1}{4}$ mile deep, and about $\frac{3}{4}$ wide. The weſternmoſt point is dangerous on account of a reef of rocks ſtretching from it about a mile from the ſhore, and on which the ſea breaks in bad weather; therefore care muſt be taken not to go too near it*.

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* There are ſome other detached rocks in the bay, on one of which the *Egmont* ſtruck, as appears by her journal.

"At $\frac{1}{2}$ paſt 12 P. M. ſaw the iſland Aſcenſion bearing W. by N. $\frac{1}{2}$ N. diſtant 9 or 10 leagues. At 7 ditto came to with the ſmall bower, in $\frac{1}{4}$ leſs 5 fathoms, Croſs hill S. S. E. veered to $\frac{1}{2}$ a cable. At 10 A. M. the next day weighed, being too near in, and dropped into 12 fathoms water. At 6 P. M. in ſtanding along ſhore had the misfortune to ſtrike on a ſunken rock at the diſtance of about 2 cables' length from the ſhore. We continued ſtriking without going a-head, though all our ſails were ſet and full, for 8 or 10 minutes: at laſt ſhe came-to againſt the helm, upon which we braced all a-back, and ſhe went off ſtern foremoſt. As ſoon as afloat ſhe began to make water, and now makes 12 or 13 inches an hour.

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The anchoring place is on the north-weſt ſide of the iſland, off Sandy bay; a good mark for anchoring is to bring Croſs-hill on the middle of Sandy bay, when it bears S. S. E. ½ E. and the extremes of the iſland from N. E. ½ E. to S. W. ½ W. then you will be in 10 fathoms water, and about ½ mile off ſhore. The bottom is ſand and gravel, clear ground; and this is as good a birth as any in the road. The hold is good, and there is no danger whatever, as the wind always blows to ſeaward. There is a great ſurf upon the ſhore, and the landing is troubleſome.

It muſt be remarked of the bays of Aſcenſion, that where there is the moſt beautiful appearance of a fine white ſand, when you land on it, and take up ſome of it, you will be ſurpriſed to find it appear like very fine gravel, but as light as duſt.

The middle of Aſcenſion Iſland lies in 7° 52′, and the road in 7° 56′ 30″ latitude North: its longitude Weſt of London is 13° 54′, according to an obſervation made by *Abbé de la Caille* in 1754; or 14° 17′ 31″, according to Dr. *Maſkelyne's* tables.

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## INSTRUCTIONS FOR SAILING FROM THE ISLAND OF ASCENSION TO EUROPE, PONEDO OR ST. PETER'S ISLAND—CAPE VERD ISLANDS—THE AZORES—VIGIAS OR DANGERS, &c.

THE courſe, ſays M. *D'Après*, kept by veſſels at their departure from Aſcenſion iſland, in their return to Europe, appears to be rather founded on the prejudice of ſome navigators, or the habitual practice of many others, than adopted in conſequence of a knowledge of the paſſage they are to make, and of the winds which they are certain to find in that paſſage. Some of them will ſteer N. W. by W. as far as the Line; others are ſatisfied with a north-weſterly courſe, either becauſe they have always done ſo, or have ſeen it done by thoſe who went before them. It has been ſhewn already that the opinion of the former, who believed the winds would be found there more briſk and durable, is not in the leaſt juſtified by experience: as to the others, I think, and many more are of my opinion, that the ancientneſs of any practice does not excuſe us from the attempt of doing better.

Why ſhould you loſe 150 leagues to weſtward, which you are afterwards obliged to fetch up again by plying to eaſtward? If you intend to paſs weſtward of the Cape Verd Iſlands, which lie N. N. W. of Aſcenſion, it is much better, in leaving this iſland, to ſhape your courſe N. N. W. up to 5° latitude North, and from thence N. W. by N. This point will carry you 40 leagues at leaſt of the weſternmoſt of the Cape Verd iſlands: and you muſt

" In the morning I ſent my chief officer to ſound upon the rock, and take its bearings, &c. He brought me word that it is a *ſmall Spiral Rock*; on the ſhoaleſt part he had ¼ leſs 3 fathoms, on one ſide of the boat, and 13 fathoms on the other, toward the head and ſtern of the boat 4½ and 5 fathoms; ſhe then laying along ſhore. From the rock to the ſhore, almoſt cloſe to, no leſs than 13 fathoms, white ſand; cloſe to the outſide of the rock 13 fathoms, and in a very little way, no ground; the ſpace it occupies is not above 5 or 6 feet any way. When on the rock, the croſs on the hill bore S. W. ¼ S. diſtance off ſhore about a cable's length and a half."

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keep a good look-out as you draw near their latitude, to guard againſt any unforeſeen errors in your reckoning. As this precaution is often taken againſt imaginary dangers, there is a ſtronger motive to adopt it in this caſe. Beſides, ſhould you get ſight of any of theſe iſles, you will have the advantage of correcting your eſtimation of longitude.

You muſt take particular notice, that the ſouthernmoſt of the CAPE VERD ISLANDS are laid down in ſeveral charts, as erroneouſly as thoſe which lie to the northward. Brava iſland is placed in 15° 10′ latitude North, inſtead of which, with reſpect to Fogo iſland and the road of Praya (the latitude of which I have obſerved), it ought to be in no more than 14° 36′ which amounts to an error of 34 minutes.

If, notwithſtanding the moſt advantageous diſpoſition of the track here recommended, you ſhould, by keeping more to the weſtward, find yourſelf near the PONEDO or ST. PETER'S ISLAND, called often ST. PAUL'S ISLAND, it is neceſſary that you ſhould be acquinted with its ſituation. This ſmall iſland has been ſeen by many ſhips, and by the ſhip *le Rouillé* in particular, March 1ſt, 1750, which lay-to, for two days, in ſight of it. According to her obſervation, it lies in 55′ north latitude, though others have judged it to lie in about 1° 10′ or 20′. When you perceive it 5 or 6 leagues off, it has the appearance of 3 ſeparate rocks; but as you come near it, you find them to be joined together, by very low land covered with ſmall trees.

The ſhip *le Curieux*, commanded by M. de *Landeneuf*, a very able and experieneed navigator, was ſent in 1768 on purpoſe to explore this iſland, which was ſuppoſed by ſome to be covered with wood, and of an eaſy acceſs. He found that *it conſiſted only of a heap of* ſteep rocks covered with birds dung, without verdure, and round which there was neither anchoring place, nor convenient landing place.

" All the tracks of thoſe veſſels which have made Ponedo, after their departure from Aſcenſion, place it in 12° 40′ Weſt of the latter, and conſequently 31° 20′ Weſt of Greenwich. But its true longitude and latitude were aſcertained the 1ſt of December, 1798, by Captain *Robert Williams*, of the *Thames*, in company with the *Earl Cornwallis* extra Indiaman, *James Tennant* commander. The longitude was found to be 29° 56′ Weſt of Greenwich, and the latitude 0° 58′ South.

When you are to the weſtward of the Iſles of Cape Verd, you will continue to avail yourſelf of the variable winds, which are met with afterward, in order to paſs to the weſtward of the AZORES, or between thoſe iſlands. It is needleſs to attempt paſſing to the eaſtward of them, with a view of ſhortening your paſſage, ſince the N. E. winds, which are frequent in this part, would on the contrary lengthen it.

Theſe inſtructions of M. *D'Après* for the courſe from Aſcenſion iſland to the Azores will be rendered more uſeful by the following extract of Mr. *Nicholſon's* journal of the ſame navigation.

Having ſailed (1764) from Aſcenſion, we croſſed the Line with 7° 56′ weſt variation, and longitude made from Aſcenſion 6° 11′ Weſt. Had the S. E. trade-wind, freſh and ſteady gales, to latitude 3° North. From 3° to 5° North, had moſtly light winds and variable, from S. E. to N. E. with ſome few calms. In latitude 5° 21′ North, and longitude made from

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from Aſcenſion, 9° 10′ Weſt, variation 6° 50′ Weſt, we met with the N. E. trade-wind, which continued, freſh and ſteady gales, to latitude 28° ½ North.

Notwithſtanding the few calms we met with, and the quick change of the trade-winds from S. E. to N. E. all this may have been merely accidental. Several ſhips have croſſed the Line with nearly the ſame variation as ours, conſequently as far to the weſtward, and about the ſame time of the year, and they have met with the ſame kind of winds as we. Yet this is not ſufficient to make it a general rule for croſſing the Line ſo far to the eaſtward, eſpecially if the ſun is on or near the Line; becauſe from 5° of either latitude, you are liable to meet with calms, more eaſtward toward the Coaſt of Guinea. Experience has proved, that the farther you go to the eaſtward on the Line, and under 5° of either latitude, the more ſubject you are to calms. Therefore the rule which holds good in croſſing the Line, outward bound to India will obtain equally, when homeward bound; and that is to croſs it in the firſt caſe with about 7° or 6° 30′ weſt variation, which is nearly in the meridian of St. Yago; and in the ſecond, not to croſs the Line with more than 8° weſt variation, where you will be leſs expoſed to calms. Obſerve that the preſent variation at the Equinoctial is half a degree more than that which is mentioned by Mr. *Nicholſon*, who continues thus:

I have paſſed to the weſtward of the Cape Verd iſlands in latitude 16° 5′, which is about the parallel of Bonaviſta, with 4° 4′ weſt variation, longitude made from Aſcenſion 19° 56′ Weſt, or about 12° to the weſtward of Bonaviſta. I have alſo paſſed the latitude of St. Anthony, the northernmoſt and weſternmoſt of the Cape Verd iſlands, with 3° 37′ weſt variation, longitude made from Aſcenſion 20° 48′ Weſt. This was the loweſt longitude I had in this paſſage; reckoning we were then about 10° to the weſtward of St. Anthony; thence it increaſed as we ran to the northward.

In latitude 28° ½ North we found the N. E. trade-winds began to decreaſe: they firſt moderated, then turned to little winds and variable. From 29° north latitude to 30° the winds veered from the E. N. E. to S. E.—South, and S. W. in which quarter they moſtly continued. In this former latitude of 29° and longitude, made from Aſcenſion, 23° 10′ Weſt, we had 6° 30′ weſt variation. In 38° 40′ North, which is pretty near the latitude of Fayal, one of the Azores, and longitude made from Aſcenſion 22° 8′ Weſt, the variation was found 12° 44′ Weſt, ſuppoſing we were then about 8° to the weſtward of Fayal, and 5½ to the weſtward of Corvo.

Corvo* is the weſternmoſt of the Azores† or Western Islands. According to the obſervation of Meſſrs. *Pingré* and *De Fleurieu* in 1769, it extends between 39° 25′ ½ and 39° 35′ latitude North; its weſtern part lying in about 31° weſt longitude from London. It is ſeparated from the Iſle of *Flores* by a channel near 4½ leagues wide. Theſe

* All the compilers of voyages tell us that at the time of the diſcovery, about 1460, in Corvo was found the ſtatue made of burnt clay of a man on horſeback with a cloak on, but no covering on his head; his left hand on the horſe's main, his right pointing to the Weſt. There were ſome letters carved on the lower rock, but not underſtood; it ſeemed to point out America.

† *Ilhas dos Açores* by the Portugueſe (corruptly *Azores*), or the "Iſles of the Hawks;" this name was given them by the diſcoverers on account of the great number of hawks which were ſeen there.

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two iſlands have nothing remarkable, they are of a moderate height, interſected with hills, and may be ſeen 10 or 12 leagues in clear weather. But the ſureſt mark is their latitude, and their detached ſituation, which does not permit you to confound them with any other.

FAYAL extends between 38° 31′ and 38° 42′ latitude, and 28° 22′½ and 28° 34′ weſt longitude.

The Peak which gives the name to PICO iſland, is in 38° 30′ latitude, and 37° 14′ weſt longitude. The ſummit of this mountain, whoſe ſides are neither very ſteep nor uneven, is terminated by a ſmall ſugar-loaf, ſo very regular that one ſhould think it has been made by art. The height of the peak above the level of the ſea, according to the trigonometrical obſervations of the French aſtronomers, is 1100 French toiſes (about 2,400 Engliſh yards) and conſequently, in clear weather, it can be ſeen 24 or 25 leagues at ſea.

The city of ANGRA, capital of the Azores, in the Iſland of TERCEIRA, is in latitude 38° 42′ North, and 27° 10′ weſt longitude. The iſland is of a moderate height; and the bay or road of Angra is eaſily known by *Mount Brazil*, which is a forked hill cloſe to the ſea; you perceive at the ſame time two ſteep iſlots called *Goats iſlands*, about 1½ league to the eaſtward of the mount: and about 2 miles to the S. E. of the iſlots are 4 rocks above water, called *os Frailes* (the Friars), with breakers near them.

As ſoon as you have made Mount Brazil, coming from the S. W.—South, or S. E. you ſhape your courſe toward it. If the wind be againſt you, when you approach the land, you can tack boldly without the bay, there being a great depth of water all over, and cloſe to the ſhore. You ought however to be always careful of a calm, as the currents are there very ſtrong, and always ſhifting. If in coming from the S. W. toward the mount, you ſhould not have a leading wind, you muſt avoid approaching too near that part of the ſhore that extends from the mount to the weſternmoſt point of the iſland. It is an iron coaſt, on which, if driven in a calm, you would be in a moſt perilous ſituation.

Ships coming from the northward muſt take great care of the ſouth point of *Porto Praya*, at whoſe extremity, 2 or 3 fathoms under water, ſtretches toward the Eaſt and E. N. E. a rocky bank about 2 leagues extent: you muſt give a good birth to the eaſt point of the iſland, very near which is a ſmall iſlot. When you enter from that quarter you firſt make the Frailes, already mentioned, and Goats iſlands to their N. W. the largeſt ſhips could paſs between Goats iſlands and the main iſland, there being 15 fathoms all over, ſandy ground; they might even anchor there in caſe of neceſſity. You find 24 fathoms between the two Goats iſlands, but in no caſe whatever, this paſſage, which is only one cable's length wide, ought to be attempted. The channel between them and the Frailes ought always to be preferred, it is 2 miles broad, with 90 fathoms water, and no danger. You might likewiſe paſs to the ſouthward of the Frailes, without the whole iſland, but taking notice that a muſket-ſhot to the ſouthward of thoſe iſlots, there lies a rock under water.

The Bay of Angra is not more than ½ a mile broad, and has not perhaps 3 cables' length of good ground, all the reſt being rocky; you muſt abſolutely moor there with 4 anchors, and always nearer the weſt coaſt, which is to the northward of Fort St. Anthony, than the coaſt

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coaſt about Fort St. Sebaſtian. It is open to all winds from the S. S. W. by the South, to the Eaſt: the S. W. ſea which comes round the Mount, is dreadful. It is high water there at 11 o'clock and 3 quarters; the ſea riſes, according to the wind, from 4 to 6, but never exceeds 8 feet. The flood ſets to the N. W. and the ebb to the S. E. you can remain with ſafety in this road during the months of June, July, Auguſt, and September, when light winds are blowing from Weſt to N. W. but as ſoon as the winter begins, the winds from the offing rage with ſuch a force, that the only reſource, as you have no ſhelter whatever hereabouts, is to put to ſea on the leaſt appearance of bad weather.

All kinds of proviſions are in great plenty and very cheap at Angra.

To the northward of the eaſt point of Terceira is the Bay of *Porto Praya*, the largeſt and ſafeſt in the iſlands, and where a whole fleet might anchor in 24 fathoms, good ſandy ground. "This bay," ſays *Fleurieu*, "has the form of a creſcent; the point toward the North, called *Mountain point*, has at its end a ſmall iſlot to the N. E. In order to lie in the beſt place, this iſlot muſt be ſhut in with Mountain point, and the two towers ſeen at the bottom of the bay, are to be brought together: you will then be in 24 fathoms, ſandy ground; the town bearing N. W. and N. N. W. you may alſo anchor nearer the ſhore in 20 and 16 fathoms. The boats muſt not attempt to land at the bottom of the bay toward the S. W. on account of a ſand-bank on which they would ground; but they will find a good landing place near the caſtle."

Obſerve that the whole of Terceira is bound with an iron coaſt.

To the N. E. by E. and according to others to N. E. or E. N. E. of Terceira in the latitude of 40°, *Manoel Pimentel*, the royal coſmographer of Portugal, ſays there is a dangerous rock not bigger than a boat bottom upwards, and that it is ſeen at low water.

Graciosa Island lies to the north-eaſtward of Terceira, 10 or 12 leagues, and appears at a diſtance like two round iſlands; but when you approach it on its ſouth ſide, coming from the S. W. it looks like three mountains; there are two iſlots, one of which, exceedingly high, lies about 1 mile from the ſhore. The chief town called *Santa Cruz* is on the north-eaſt part, and has a good harbour.

St. George's Island is about 5 leagues to the northward of Fayal and Terceira, being ſeparated from Gracioſa by a channel 4 or 5 leagues broad. It is a long and narrow iſland 7 or 8 leagues in length, and ſcarcely 1½ or 2 leagues in breadth; it lies in a direction W. by N. and E. by S. having on the ſouth coaſt the little town of *Villa das Vellas*, with a port where ſmall veſſels can lie ſheltered from all winds.

St. Michael's Island lies to the ſouth-weſtward of Terceira, in 38° 0′ latitude North, whence it may extend as far as 37° 40′. The longitude is between 25° 20′ and 25° 49′ Weſt of London. Twenty leagues N. by E. from the middle of the north coaſt of this iſland, there is according to *Manoel Pimentel* already quoted, a rock above water, and about the ſize of a whale, from which a reef extends a ſmall cannon ſhot to the ſea; it is called *Carvel's Shoal.*

The northernmoſt part of St. Mary's iſland is in latitude 37° 10′, whence it may extend to 36° 57′. Its longitude may begin at 25° 1′ and terminate at 25° 9′. On the ſouth ſhore,



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the French aſtronomers deſcried a town, with ſeveral ſhips at anchor, whoſe latitude is 36° 59′½ and the longitude 25° 6′¼.

It will not be improper to mention here a volcanic iſland which came out of the ſea the 31ſt of December 1719, 12½ leagues from St. Anthony's point in St. Michael's iſland, and diſappeared the 17th of November 1723. This iſland had emerged before in 1628, and 80 fathoms water were found on the ſpot which it occupied.

Between St. Mary and St. Michael is an extenſive ſhoal called *the Formigas* (the Ants): it ſtretches 3 leagues from North to South, and is one league broad, being formed by 7 or 8 iſlots, the largeſt of which takes up the ſouth part; but the higheſt, which is pretty much like a ſhip under ſail, whoſe hull is not ſeen, is ſituated about the third of the length, toward the North. The rocks of the ſouth part are the loweſt, and between the iſlots and theſe rocks are breakers. They ſay there is a channel between the South of the Formigas and the north point of St. Mary, coming nearer the former than the iſland; but it is not adviſable to attempt that paſſage: the ſafe channel is between the eaſt point of St. Michael and the north rocks; it is 5 leagues broad, and free from danger.

To the above deſcription of the Formigas given by *Fleurieu*, we muſt add the report of Captain *Nathaniel Simpſon*, who has explored them. "Theſe rocks," ſays the Captain, "are ſo dreaded by navigators, that ſome of them have been 30 or 40 leagues out of their courſe to avoid them; in moſt charts you will find them laid down as dangerous, and the channel between them and St. Mary, called *Little Paſſage*, is repreſented as not frequented by ſhips. Off the ſaid iſland St. Mary, I was becalmed in coming from America, and being then within 2 leagues of the Formigas, I hoiſted my boat out in order to explore them. From the ſhip toward the rocks, I kept ſounding, the eaſt end of St. Mary bearing from us W. by S. diſtant one league. The Formigas, as you approach them, appear dreadful, their breakers flying higher than a ſhip's maſt-head, although a calm. The ſea ran from the weſtward, ſo that I had an opportunity of landing on the eaſt ſide of the rocks, but could get no ſoundings with the 50 fathoms line, till within 50 yards of the rocks. They bear from St. Mary's Iſland N. E. by N. diſtance about 3 leagues, extending from North to South about ¾ of a mile: cloſe along the Formigas there are 7 fathoms water. The higheſt rock is from the ſurface of the water about 50 feet perpendicular. We ſounded from the rocks toward St. Mary, but could find no bottom with 120 fathoms line, till within ¼ mile from the iſland, which proves that through the Little Paſſage, the whole navy of England might run abreaſt, without the leaſt danger."

When the Iſles of Corvo and Flores were diſcovered, in 1460, as has been already ſaid, it is pretended that the magnetic needle had no variation at theſe iſlands. This obſervation made the Portugueſe fix there their Firſt Meridian, which has been ſince removed to the *Peak of the Azores* ſituate on the ſouth-weſt point of Pico iſland. From this æra the variation has increaſed ſeveral degrees to the Weſt; in 1769, M. de *Fleurieu*, in the French ſhip *Iſis*, found it 15° 36′ Weſt.

In 1764, it had been obſerved by his Majeſty's ſhips *Weymouth* and *Panther* amongſt theſe iſlands

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iſlands and in Fayal road, to be 13° 34′ Weſt*, ſo that a ſhip, ſays Mr. *Nichelſon*, in the latitude of Fayal, obſerving the variation under 13° 30′ Weſt, might be ſure ſhe is to the weſtward of the Azores. About 3° to the Weſt of Corvo this variation was 13°½; and in latitude 40° 50′ North, longitude made from Aſcenſion 19° 44′ Weſt, about 3° likewiſe; to the weſtward of Corvo, it was 13° 37′ Weſt.

" Though the increaſe of variation near the Weſtern iſlands," continues the ſame navigator, " was ſo ſlow, that you would run 3° of longitude to the increaſe of 55′ or 1° variation; when you were to the northward of the ſame iſlands, and ſteering to the eaſtward, you would increaſe it very gradually: for example, from the laſt mentioned variation, latitude and longitude, you would run 18° or 19° to the eaſtward, before your increaſe ſhould amount to 18°½, which you would have in latitude 49° 10′, to 49° 30′ North, and longitude in about 15° Weſt of London, or 8°½ from Scilly; which ſhews that the variation increaſed very gradually, or at the rate of 4½ of longitude to 1°½ of variation."

At the end of theſe inſtructions, which muſt be likewiſe the concluſion of our work, it is neceſſary to give an account of the VIGIAS *(Look-out)* or *Dangers* which are, or ſuppoſed to be, ſcattered in that part of the Ethiopic and Atlantic Oceans of which we are treating. The greateſt number of theſe ſeem to exiſt in the vicinity of the Azores.

Beſides the *Two Dangers*, mentioned by *Manoel Pimentel*, and already quoted, a ROCK is ſaid to lie to the eaſtward of *St. Mary* about 82 leagues, in 36° 54′ latitude North. Another at 92 leagues to the N. N. E. of the north point of *St. Michael*; and in the ſame direction, 18 or 20 leagues from that point, the Portugueſe pilots add a third danger, which might be the ſame† with this.

To the S. W. of the Iſles of *Corvo* and *Flores*, is placed the AZORES ROCK or SHOAL. The Charts agree pretty well as to its latitude, in which however they vary from 37° 50′ to 38° 20′, and according to the Terceira pilots, it muſt be only in 37° 30′: but they differ ſtrangely in the longitude; and if a mean be taken between the ſeveral accounts, this rock ſhould lie in 33° 55′ Weſt of London.

Almoſt under the Tropic, and about 32° 33′ Weſt of London, M. *De Fleurieu* in his Chart of the Atlantic Ocean inſerts a ROCK, or *vigia* ſeen in 1764, and of which no notice is taken in the critical enumeration of theſe dangers given in the voyage of Meſſrs. *Verdun de la Crenne*, *Borda*, and *Pingré*, 1777.

To the S. W. of *Brava*, the Dutch, as well as the French Charts, lay down a ROCK or *ſhoal* which, according to M. *D'Après*, or rather captain *Dubreuil*, the ſuppoſed diſcoverer, muſt be 95 leagues from Brava, in 14° 50′ latitude North. The Chart of *Van Keulen* places it under the name of ABROLHOS, only 85 leagues W. by S. from Brava.

There is a ſuſpicion, ſays M. *D'Après*, of certain ſhoals to the ſouthward of the Equinoctial Line, as well about the tracks navigators follow in their courſe to Brazil, as about thoſe they injudiciouſly keep in their return from the Indies. Take here what the journals relate on this ſubject.

* M. *De Fleurieu* found it in 1769 near Pico 13° and 13° 19′.

† This muſt be one of the *Pimentel's Dangers*.



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On the 5th of February 1754, the people on board the ſhip *Le Silhouette*, commanded by M. *Pintault*, felt a ſhock or violent agitation, as if the veſſel had touched upon a ſhoal; it was then about five P. M. and from the latitude taken by that very day's obſervation, this dangerous ſpot ſhould be 20′ to the ſouthward of the Line, in about 20° 45′ weſt longitude from London, according to their reckoning, which they traced upon the French chart, from the road of Praya in the iſle of St. Jago.

On the 13th of April, 1758, the frigate *La Fidele*, M. *Le Houx* commander, felt alſo the like ſhocks in 20′ ſouth latitude and 20° 55′ weſt longitude.

On the 3d of May 1761, *Le Vaillant*, captain *Bouvet*, about 1 P. M. ſaw a *ſmall ſandy iſland* which bore N. by E. The latitude by the reckoning at noon was about 23′ South, and their longitude, reckoned from the ſight of Ferro iſland, which they made the 8th of April, was about 19° 5′

On the 17th of October, the ſhip *Le Prince*, captain *Beaubriant*, in her paſſage to India, felt one or two ſhocks as if ſhe had ſtruck upon a ſhelf. She was at that time in latitude 1° 35′ South, and about 17° 45′ longitude, reckoned from the ſight they had of iſle Brava.

FINIS.

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# APPENDIX.

HAVING been favoured with the following articles, when it was too late to inſert them in the proper place, and their importance requiring that they ſhould not be omitted, the Editors have added them as a neceſſary appendix. They entreat, at the ſame time, the navigators, who have ſo generouſly intereſted themſelves in the improvement and augmentation of this work, to continue their indulgence, either in pointing the errors, or affording new materials; and nothing ſhall be neglected to render it worthy of univerſal approbation.

The 1ſt article ought to be placed at page 63, where an account is given of the *Tryal Rocks* on the weſtern coaſt of NEW HOLLAND. We are ſo little acquainted with the north coaſt of that immenſe region, that no notice has been taken of it in our deſcriptions, nor of the ſhoal on that coaſt ſeen by *Dampier*, December 31ſt 1688, and which he deſcribes thus: *

" This ſhoal lies S. by W. from the eaſtern part of *Timor*, according to our account, in 13° 50′ (ſouth latitude): it is a ſmall ſandy bar, that ſhews itſelf on the ſurface of the water, ſurrounded with rocks, which appear above 10 feet above the water. It is of a triangular form, and each ſide is about 1½ league long. We were going to ſtrike on it juſt in the middle. We went half a league from the rocks, and ſounded, but found no ground. Our charts place this ſhoal at only 16 or 20 leagues from New Holland; but we ſailed about 60 leagues before we were abreaſt of it, and I am perſuaded that there is no place of New Holland in that vicinity, which is ſo much to the North as 40 leagues, as our charts lay it down."

*Dampier* was then coming from Timor to the ſouthward; and according to the bearing of the ſhoal from the eaſt part of that iſland, its longitude ſhould be about 121° Eaſt of London.

In the year 1800, the ſhip *Cartier*, coming likewiſe from Timor, diſcovered two ſhoals to the ſouthward of the ſame iſle: the firſt which he ſaw was a high bank that appeared to be about 5 miles in circumference, rather extending to eaſtward, and weſtward, in latitude 12° 29′ South, and longitude 123° 56′ Eaſt.

The ſecond ſhoal is mentioned as follows:

" At midnight on the 6th of March, under double reefed top ſails; top-gallant maſts and yards upon deck, and blowing a gale of wind (both before and after the accident) ſtruck on a ſunken rock; hove aback, and immediately wore off; had 5 fathoms, rocks, while ſtationary."

" This ſhoal, I am led to believe," ſays Captain *Naſh*, " is of great extent, as we had

* *Voyage Round the World*, t. 1, p. 518.

ran

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ran along for about 20 minutes in much ſmoother water, and which, I think, was occaſioned by rocks or breakers to windward, (as we had a very heavy ſea before and after) although not any in ſight of us.

" Its latitude brought forward from the preceding noon is about 13° 58′ South, and the longitude, likewiſe brought forward from the laſt ſight, *per* watch, is 122° 20′ 45″.

" The rocks we ſuppoſe are the ſame which *Dampier* mentions to have ſeen in 1688.

" The ſhip," adds M. *Robert Sutton*, " from being in a very heavy ſea, ſuddenly came in ſmooth water, and ran then 2½ miles, before we ſtruck. We were on the rocks, and could ſee nothing above water. It is very probable there are rocks, or a ſand above water, on account of the ſmoothneſs of the water, and I think it muſt be pretty large."

The following article belongs to the Deſcription of The CHAGAS ARCHIPELAGO, p. 126: it was communicated by Captain *Charles Stokes*, then on board the *Warren Haſtings* country-ſhip, bound from the *Iſle of France*, or " Mauritius," to Bengal.

Friday, September 25th, 1795.

" Several conſiderable flocks of birds about the ſhip. As we are now in the exact ſituation, by chronometer, of the *Corniſh* and *Eagle* iſlands, and no ſoundings, or any land in ſight: it is almoſt certain that they are the iſlands on the weſtern ſide of the group which forms the *Baſſas de Chagas*, *Brothers*, &c. as they lie in " nearly the ſame latitude," but to the weſtward; a miſtake, which might eaſily have occurred, from an uncertain mode of determining their longitude. I therefore conclude no ſuch dangers exiſt.

" At 3 P. M. thinking the water diſcoloured, hove-to, and ſounded every hour, no ground, at 90 fathoms. A great many birds about the ſhip. At day-light made ſail.

" Longitude this day by ☉ and ☾ continued with the run by chronometer 68° 58′ 45″ Eaſt.

By chronometer this day,

| | | | |
|---|---|---|---|
| Longitude at noon - - - | 69° | 18′ 45″ | Eaſt of Greenwich. |
| Ditto Ditto - - - | 11 | 2 15 | Weſt of Madras. |
| Ditto Ditto - - - | 11 | 10 40 | Eaſt of iſle of France. |
| Made by the watch ſince yeſterday noon | 1 | 15 15″ | Eaſt. |

" I find no difference between the difference of longitude by the watch, and by account; and only a current of 2 miles to the northward by latitude.

" Saturday 26th.

" By the Calcutta chart of the Baſſas de Chagas, on which ſhe anchored, I find they had two obſervations of the ☉ and ☾; their firſt ſtation gave 72° 30′ Eaſt of London, and their ſecond 72° 8′: from the latter they ran 44 miles to the weſtward, and were then upon the weſtern edge of the bank, 17 fathoms; when 6 miles more to the weſtward, no ground was found at 80 fathoms. It may therefore be ſafely concluded that this is the limit of the Chagas, and that it lies in 71° 24′ eaſt longitude, and 16° 21′ ſouth latitude. I am alſo confirmed in opinion by the ſwell we had in croſſing the above parallel of 6° 21′ South, at which time we were in longitude, by watch, 68° 55′ 15″; by ☉ and ☾ 68° 15′, or a difference between the mean of the two, and the weſtern edge of 2° 38′ 45″ Weſt.

By

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By chronometer this day,

| | | | |
|---|---|---|---|
| Longitude at noon - - - | 71° | 6′ | 0″ East of Greenwich. |
| Ditto Ditto - - - | 9 | 15 | 0 West of Mauritius. |
| Ditto Ditto - - - - | 12 | 57 | 55 East of Ditto. |
| Made by the watch ſince yeſterday noon | 1 | 47 | 55 East. |

N. B. It is a little extraordinary that the birds, of which we have ſeen a great number, and which generally fly to windward of an iſland or ſhoal, ſhould have left us in a great meaſure, ſince we have paſſed the *Eagle* and *Corniſh* iſlands. This ſurely is an argument in favour of their exiſtence, for though you meet with birds all over the Ocean, and at a conſiderable diſtance off land, yet I have ſeldom ſeen them in ſuch large flocks, at a great diſtance from it; and that they could not be from the Chagas, which is the neareſt land to the eaſtward, is probable from our having been nearing it, ſince the birds left us. I therefore cannot ſuppoſe the exiſtence of theſe iſlands, and ſhould ſuppoſe we muſt have been near them when we ſaw the birds yeſterday."

To Captain *Stokes* we are likewiſe indebted for the following curious article, which ſhould have been placed, page 133, at the end of the Deſcription of the Iſland *Adu* and *Candu*, &c. in the Indian Ocean. It is tranſcribed from the journal of the *Diſpatch*, Captain *Brown*, bound to Madras.

" January 6th 1799.

" At 5 A. M. having a moderate ſteady breeze at S. S. E. and cloudy weather; ſteering N. N. E. at the rate of $5\frac{1}{2}$ miles *per* hour, a long ſwell from the S. E. felt a motion, as if the ſhip was running over the ground, or ſome other ſolid ſubſtance; and at the time, for a ſpace of from 5 to 7 minutes, heard a confuſe, grinding, tremulous noiſe affecting the ſhip in every part. It ceaſed, and the ſhip was inſtantly hove-to: we ſounded with 90 fathoms of line up and down, but no ground. By this time it was perfectly day-light, the ſea not in the leaſt confuſed, nor could we perceive the ſmalleſt appearance of any thing which had occaſioned this noiſe and motion. The ſhip was not felt to ſtrike once; ſhe kept perfectly upright, kept her way through the water, and anſwered the helm: nor does ſhe make any water in conſequence of the ſhock received. Theſe circumſtances make us at a loſs to account for it in any other manner than attributing it to ſome violent convulſion of nature.—Draught of water forward 8 feet, and aft 10 feet 6 inches. Latitude 7° 58′ South; longitude, reduced from an obſervation of the ſun and moon, on the 1ſt inſtant, 87° 39′ East."

It appears evident that this ſhock is reſulting from an earthquake, or perhaps from an extraordinary commotion given to the water by the exploſion of a ſubmarine volcano.

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